TÜRKOĞLU®
VALVES AND ARMATURE

twm®
TURKOGLU WATER METER

WATER METERS
CATALOGUE

TÜRKOĞLU®
VALVES AND ARMATURE

Company Profile

Sensoylar company was established under TURKOGLU brand name in 1978, one of the Turkey's premier manufacturers of contruction materials such as water meters, valves, water and gas flexible metal hoses, installation and fittings, fire equipments products and special fabrications. It has become one of the leading companies in the industry while being a professional and reputable brand in the field by its product reliability, durability, quality and stabilty.

Our products can be used in all fields of water, gas and wastewater industry. The company has been continuing to invest in technological products based on the needs of the markets by R&D activities in order to increase sales rate for both the domestic and international markets.

To meet to the needs of its customers and dealers, the company has a wide network of dealers in domestic and international markets by expanding its product range, product quality, sales and after-sale services.

The company has been exporting to many markets worldwide and has acheived to be followed by competitors in the industry.

Most of the production and managerial process is certificated with ISO 9001, ISO 14001, OHSAS 18001, CE marked, MID, ISO-EU directive, GOST, EN and TSE norms.

Increasing the number of engineers and technicians which enable to attain better quality, dynamic and profossional structure.Our company aims to be the brand that is followed in the industry by following the determined vision and missions.

Turkoglu Family

ZZZ Serie (DN15-DN20)

Multi-Jet Dry Dial Type For Cold Water Remote Reading Prepaid Water Meters (RF)

General Features:

- Approved in accordance with MID
- RF (Radio Frequency) automatic remote reading
- Bidirectional RF communication with LORA modulation (**parametric settings can be entered via RF**)
- Compliance with central reading system via GPRS gateway
- **Operational frequency: the license-free built-in EU @ 868 Mhz band**
- **Desired CURRENCY option according to country and region differences**
- **Desired LANGUAGE option according to country and region differences**
- Lora, GSK FSK modulation option
- FR4-TG130 material, locally designed PCB Card
- **128x64 pixel graphic LCD screen**
- Multi-Jet dry dial register type with vane-wheel
- Brass housing material and ABS casing box
- Durable, removable, internal strainer and non-return valve
- Metrological range -horizontal- R100 (Class B)
- Anti-tamper magnetic field protection
- SMA connected rubber antenna
- Index reading without going to water meter
- Easy to prepare statistics in computer
- Detecting, recording and penalizing position
- **1,2 ve 4 kBit e2prom permanent memory optional**
- Ability to keep consuption information for the last 6 months
- Electrostatic e/p powder painted
- 1/10/100 lt measurement resolution options
- **Setting up different tariffs according to different time zones and usage amount**
- Keeping backup credit and deducting from customer credit if necessary
- IP65 protected casing box, electronic circuit and mechanical meter
- **Replaceable lithium battery by Water Authority (1 pc for motherboard, 1 pc for ball valve)**
- Motor controlled brass ball valve (CW617N)
- Up to 10 years of battery life with 3,6V/4100 mAh lithium battery
- The integral real time clock
- High resistance to water impurities
- External precision measurement adjustable screw
- Water temperature up to 50°C • 2 years of guarantee
- Spare parts and service available for 10 years

Approvals:

EC type-examination certificate in conformity with

- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

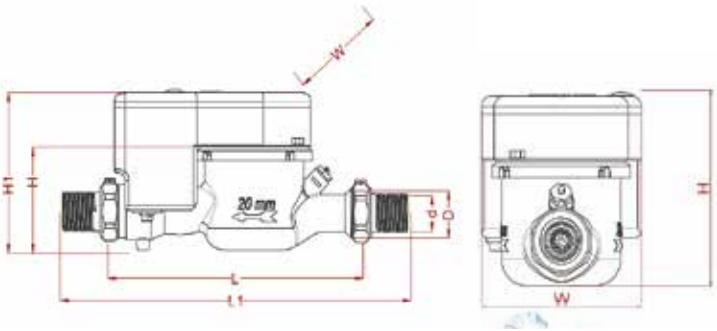
- ISO 9001:2015
- ISO 45001:2018
- ISO 14001:2015
- ISO 27001:2013

Optional:

- Keeping subscriber information data on the meter (Name, Surname, Address, etc.)
- Turning on/off by activating RF at the desired times and dates
- For battery warnings, half valve closing in 1st level alarm, full valve closing in 2nd level alarm
- Closing of the ball valve by penalizing in case of reverse flow detection,
- Closing of the ball valve by penalizing in case of unauthorized battery removal and unauthorized tampering with casing box
- Ability to add desired additional alarm and information records according to country or region
- Options for keeping the last month's information for 12, 24, 36 months
- Suitable for postpaid use if requested, in which remoting ball valve on/off feature.

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	15	20
		Inch	Inch	½"	¾"
	Overall Lenght without connectors	L	mm	190,00	190,00
	Overall Lenght with connectors	L1	mm	260,00	260,00
	Tread Meter	D	Inch	½"	¾"
	Tread Connector	d	Inch	R½"	R¾"
	Total Height	H	mm	75,00	75,00
	Total Height (----)	H1	mm	122,00	122,00
	Width	W	mm	98,00	98,00
	LCD Screen Dimension	*	mm	128x64	128x64
	Weight approx	*	kg	1,52	1,51
	Package without connectors	*	kg	1,62	1,61
	Package with connectors	*	kg	1,88	1,77
	Package dimension (1)	*	cm	27x14x11	27x14x11
	Package dimension (5)	*	cm	57x28x15	57x28x15
	Quantity per package	*	unite	5	5

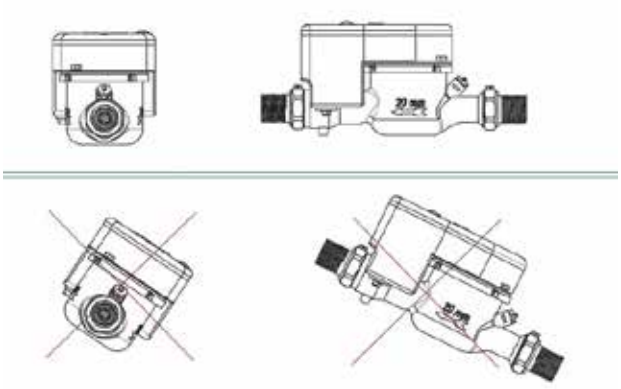
Threading :EN ISO 228-1 : 2003

Marking:

The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional: Purchaser's logo or tender number, or QR code

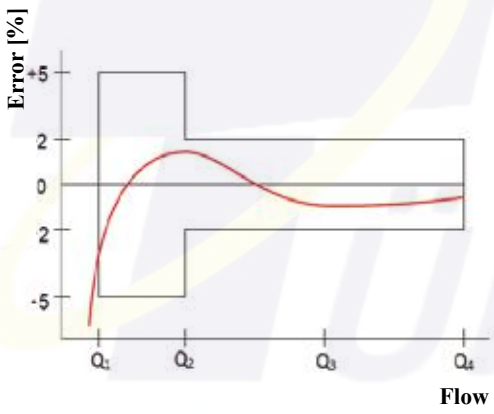
Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.



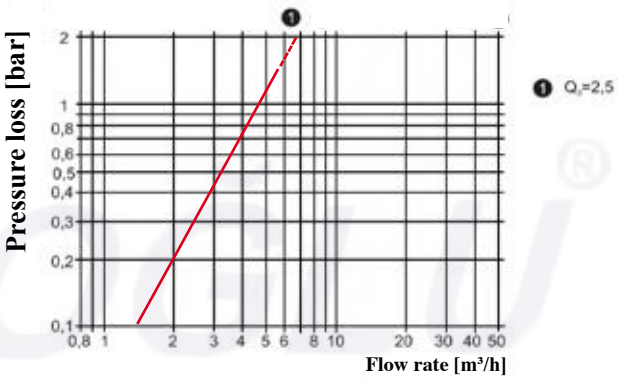
Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

Typical Accuracy Curve:

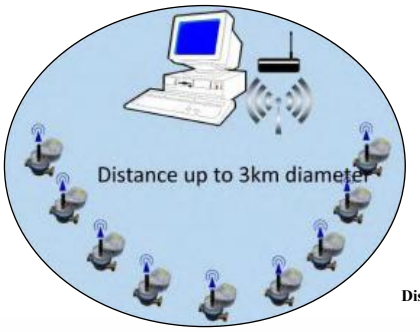


Typical Head Loss Curve:



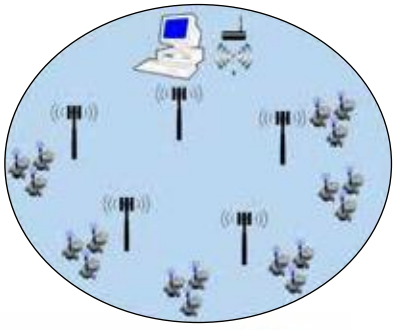
WIDE AREA COMMUNICATION METHODS

Transfer Station Communication Method



Distances and trasnfer stations are directly affected by geographical region and architectural

Transfer Station Communication Method



Tempering Protection and Sealing:

•Anti-Tempering butterfly seal for water meter

Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

•Anti-Tempering plastic seal for water meter connectors

Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

•Meter Seal

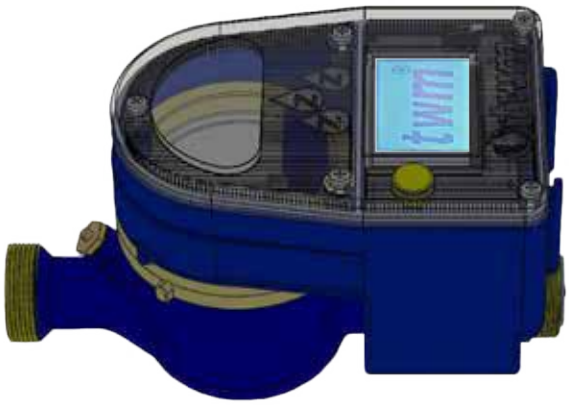
The meter is sealed by stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal

Stainless Steel Seal

		Nominal Daimeter (DN)	DN / Size	mm / Inch	15	20
			Size	Inch	½"	¾"
Performance Data	Metrological Data	Maximum Flowrate (m³/h)	Q4		≤3,125	≤3,125
		Nominal Flowrate (m³/h)	Q3		≤2,50	≤2,50
		Transitional Flowrate (1/h) Tolerance ±2%	Q2		≤40	≤40
		Minimum Flowrate (1/h) Tolerance ±5%	Q1		≥25	≥25
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		100 H (Class B)	
		Measuring Transitional Flowrate	Q2 / Q1		1,6	
		Mesauring Maximum Flowrate	Q4 / Q3		1,25	
		Accuracy Class			2	
	Technical Data	Maximum Permissible Error fort the Lower Flowrate zone	(MPE1)		±5%	
		Maximum Permissible Error fort the Upper Flowrate zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C	
		Temperature Class	T °C		T30 and T50	
		Water Pressure Classes	MAP (Bar)		16	
		Pressure - loss Classes	Δ P (Bar)		0,63	
		Max. Indicating Range	[m³]		99999	
		Resolution of the indicating Device	[litre]		0,05	
		Instalation Positions			H	
		Mechanical / Electromagnetic Class			M1 / E1	
		Protection Class (IEC 605-29-2-30)			IP6	
		Battery Life			Up to 10 years	
		Impulse Value	litre/pulse		1,10,100	

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



MATERIAL			
1	Body (Brass)	15	Battery Plug
2	Push Button	16	Central Gear
3	Casing Box Screen	17	Anti-Magnetic Metal Ring
4	Casing Box (PC/Polycarbonate)	18	Clamping Material
5	Casing Box Gasket	19	Turbine/Vane Wheel
6	LCD Screen	20	Measuring Chamber
7	Pulse Device	21	Adjusting Plug
8	Motor	22	Adjusting Screw
9	Lithium Battery	23	Strainer / Filter
10	Casing Box	24	Stem Gasket
11	Register Cap (Brass)	25	Stem of valve
11.1	Cap Sealing Gasket	26	Union of valve
12	Sliding Gasket	27	Check non-return Valve
13	Glass (PC/Polycarbonate)	28	Seals of valve
14	Register / Totalizer	29	Ball of valve

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the
comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast)
containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of press brass alloy containing not less than 58% copper.
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is 360° rotating and made of hard polymer.

• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

• Ball Valve

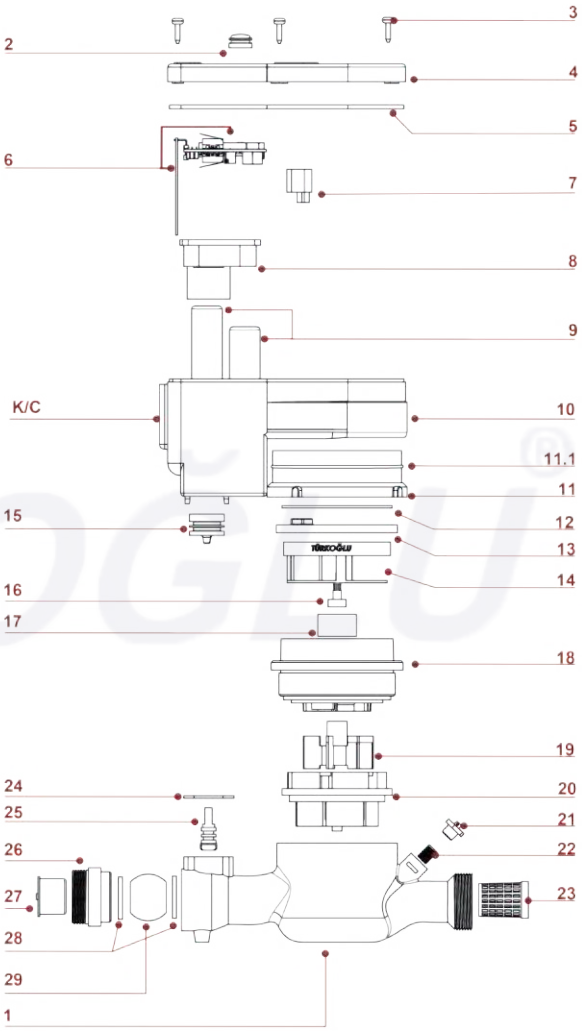
Brass ball valve is located on the prepaid water meter body. Valve is controlled by low voltage DC Motor.
It works with very small torque. Recommend that regularly open open/close the valve to remove the contaminant on the surface of the ball.

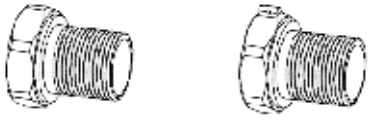
• Battery

Up to 10 years of battery life with 3,6V/4100 mAh lithium battery. It is waterproof threatment at both ends of the battery. Replaceable lithium battery easily by Water Authority (1 pc for motherboard, 1 pc for ball valve)

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard. Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.





(1) Connector without hole for sealing (2) Connector with hole for sealing

HILAL SERIE ELECTRONIC TOTALIZER AND COMMUNICATION MODULE

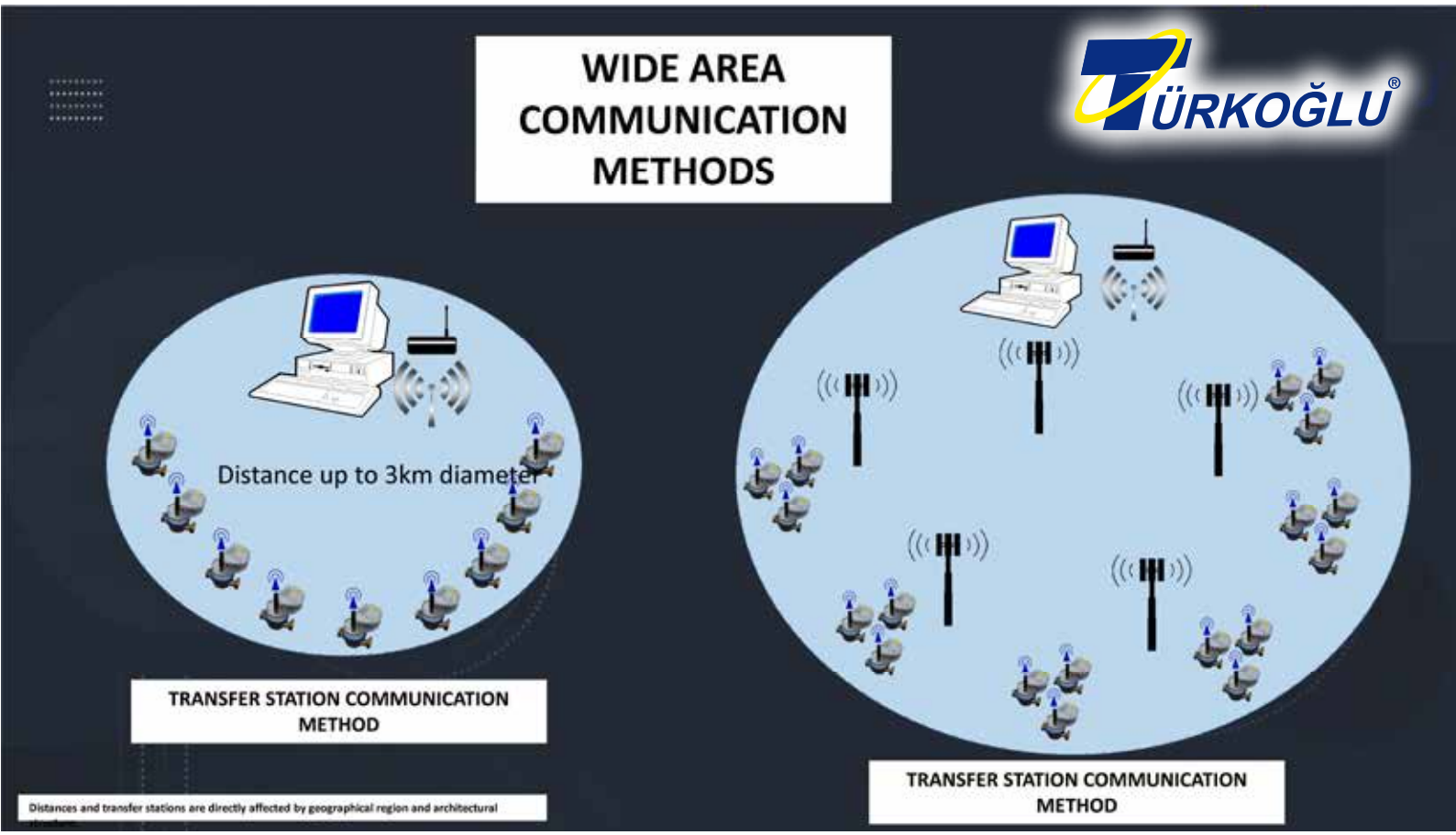
- **OPTION - A (AMR)**
  - Built-in EU @ 868Mhz radio frequency (RF) module
  - Lora, GSK, FSK modulation option
  - 50… 500mW Radio Frequency (RF) Power Option
  - Standard wireless M-BUS protocol support
  - Wireless parameter and settable feature
  - Specific communication password for user
  - SMA connected rubber antenna
  - Activating the radio module at the desired time and date based on user preference
  - 100% domestic software and design

OPTION - B (WIRED M-BUS)

- EN13752- EN13753 M-BUS Communication Protocol
- Externally supplied M-BUS connection
- Simultaneous OPTION-A support
- Ability to store consumption information in-non volatile memory
- 100% domestic software and design

- **<u>OPTION - C (DIGITAL TOTALIZER)</u>**

- **Customized COG LCD display with low power consumption**
- **Ability to digitally store consumption information**
- **Ability to store consumption information in-non volatile memory**



Advantages

- TWM Subscription Management System allows to carry out meter reading and billing operations remotely.
- It eliminates the obligation to allow unauthorized persons to enter especially in sites and collective housing areas.
- Site and collective housing managements can read and invoice the hot and cold water meters digitally without requiring to receive any service from outside.
- It minimizes the loss / leakage rate with its measurement sensitivity for 1/10/100 lt.
- When the project-specific encryption technique is used, data security is at a high level.
- It prevents human-driven optical illusions in readings.

TÜRKOĞLU

What is it? What is it not?

- Distributing the rare energy and water resources among the users and paying the costs fairly has become a necessity and legal obligation in today's world. Therefore, various technologies and methods have been developed for reading the meter consumptions, determining the subscription-based consumptions, billing based on appropriate methods and regulations.
- Remote meter reading systems are practical communication systems used to read electricity, gas and water consumption rates automatically. In the buildings controlled by building management systems, heat and water consumption per flat can be read over a central computer thanks to remote meter reading systems. Instead of manually reading the value of each meter and billing, remote meter reading systems.
- The obligation to perform central heating in areas over 2000 m², to measure and to be distributed based on regulation principles has been imposed upon the enactment of the regulation on the allocation of heating and sanitary hot water expenses. In the buildings with central heating, energy consumption per flat is determined by recording the meter indexes.
- Remote meter reading systems are preferred for their advantages such as fast communication, leakage and loss control, error-free billing, instant monitoring, examination and control capacity and energy saving and the follow-up process.
- In remote meter reading systems, wired communication, wireless communication and hybrid (wired+wireless) systems are used. This system prevents the intervention of the officer to the meters by allowing to read the meters by ensuring data transfer between the meters and readers.

Wired Communication Systems

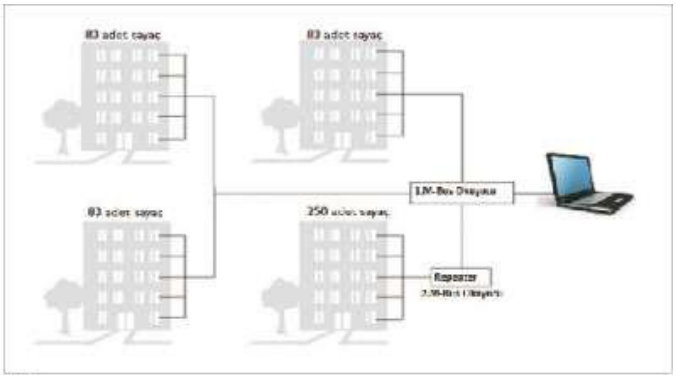
Wired communication protocols are mostly preferred in buildings with central systems and buildings with meter reading and billing. Among these protocols, the most popular one is the M-Bus (meter) communication system.

This communication protocol used for communication in building management systems ensures fast and safe data communication between meters and computer.

Buildings with M-Bus has a communication system to allow multiple-meter reading remotely which are developed for meter reading systems, and their technical properties, layers and data communication information have been specified by TS EN 1434-3 standard.

In M-Bus wired systems, meter information are conveyed to the computer over 2-wired communication line. Meters are connected to the data line in parallel or in series, regardless of polarity difference. It has a data converter which enables to store all meter information on the same line and convey to the computer.

Thanks to the computer software, meter consumption values, instantaneous flow, instantaneous input water heat, instantaneous output water heat, total flow are read and recorded at any time.



Şekil 1.

Advantages of Wired Systems:

Instant measurement

- Fast communication: Wired systems allows to remotely read the meter values from a single point, and carry out bidirectional data exchange.
- Easy wiring: Wired systems preferred for their ease of wiring in buildings where new lines will be installed enables to read meter values safely and reliably.
- Since the meters can be tracked spontaneously, they allows instant intervention in case of any fault in the line or meter.
- Power consumption is at the minimum level.
- A reader can read maximum 250 meter information; however, by using "Repeater" feature, any number of meters can be read and invoiced.
- Billing can be realized by the building management after providing the necessary trainings.
- For consumption optimization, reading can be realized at short intervals and statistical data can be obtained accordingly.
- Since the billing is realized by the management, any additional fee is not paid.
- Input - Output heats recorded to the calorimeter can be tracked by readers. In this way, the user can get information on the details of billing.
- Since each meter has its own ID, billing can be realized without mixing the meter data when reading.

Disadvantages of Wired Systems:

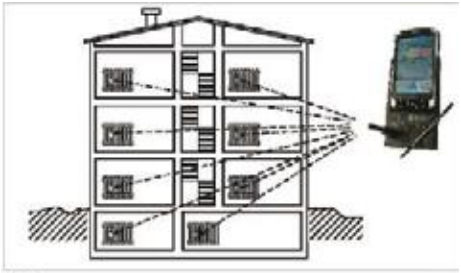
- Since wiring will be difficult in old buildings due to the building structure, wired systems are not preferred.
- Cost of reading and billing will be born in the installation stage. On the other hand, since any reading fee is not demanded in wired systems in the long run, it will be much more advantageous.

Wireless Communication Systems

Wireless meter reading systems allows to read electricity, gas and water meters data remotely in accordance with EN-13757 standard and collect such data in a single center.

In wireless meter reading systems developed as an alternative to the wired M-Bus systems, data received from meters are read and notified to the center via handheld terminal or station.

Reading and billing operations are carried out in a center after collecting the data. In the wireless meter systems, any problems caused by wires and converter units are not experienced.



Şekil 2.

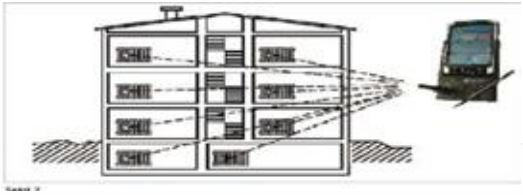
Wireless Communication Systems

All wireless meter reading systems use radio frequences determined and controlled by local telecommunication board. Frequencies below 1000 MHz, especially 433 MHz band and 868 Mhz band are more appropriate for wireless meters since they provide communication opportunity for longer distances compared to high frequencies.

RF applications are suitable method for electricity, water and gas administrations in line with the automatic meter reading concept, serving as a technology to allow information collection from remote points. Besides, it provides a very wide infrastructure in remote monitoring and telemetry applications. The system structure is based on a low power radio frequency system and is fully automatic. The period of the communications sent from the remote unit can be programmed, and hourly, daily or weekly data transfer programs can be installed in the system based on the scope of the application. RF is the most used communication type in OSO applications. Its most important feature is to eliminate the need for cables and provides cabling cost savings.

A low cost radio transmitter is integrated into the current meter and information received from the meter interface is conveyed to the transmitter. The radio transmitter transfers the information to the operation center where the main computer is located for evaluation. The consumption values stored in the memory of the meter are transferred to the handheld terminal which carries out queries instantly over the frequency band. The reading information transferred to the handheld terminal is transmitted to the headquarters of the companies through electronic communication. Information evaluated, compared, and converted into expense sharing statements or invoices at the center are transmitted.

Even though it is considered as an easy practice in terms of management since the firms receive a service fee of 1.5 - 3 Euros at each reading and the management only undertakes to distribute invoices, it is a high cost and supplier-dependent system. Besides, wireless reading applications are generally carried out by foreign firms and their contact offices in Turkey. Great majority of the share out of the cake are transferred to the abroad by these foreign-centered firms and results in constant foreign currency outflow from the country.



Advantages of Wireless Systems:

- Meter data can be read without allowing user intervention.
- In the location with wiring difficulty, consumption expenses are read by connecting an RF meter.
- Cabling cost is eliminated.
- RF Heat meters (calorimeters) used in heating systems are cheaper than wired and M-Bus compatible heat meters (calorimeters). Since RF heat meters (calorimeters) do not bear wiring cost, it can be preferred.
- Systems with bidirectional communication feature are more complicated and costly than those with one directional communication feature.

Disadvantages of Wireless Systems:

- Since the reading is carried out monthly or periodically, it is not possible to make instant intervention in case of any fault in the meters.
- Wireless meter data is sent abroad for reading after being collected. Since any domestic location cannot be found yet, a fee is paid in international sale (1.5 - 3 Euros per subscriber) for monthly billing.
- While reading wireless meters, consumption values of the flat which cannot be read are billed by taking the average of consumption values of upstairs and downstairs.
- Meter reading can be difficult because of various reasons (such as wall thickness, jammer, placing items in front of the device, electrical cables, etc.)

MERCAN Serie (DN15)
Multi-Jet Dry Dial Water Meter for Cold Water

Main Characteristics:

Approved in accordance with MID
Multi-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer and non return valve
Removable measuring mechanism
Metrological range -horizontal- R160 (Class C)
360° rotating lid
Horizontal installation
Magnetic transmission
Register cap made of brass
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
External adjustable screw
Water temperature up to 50°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless), RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

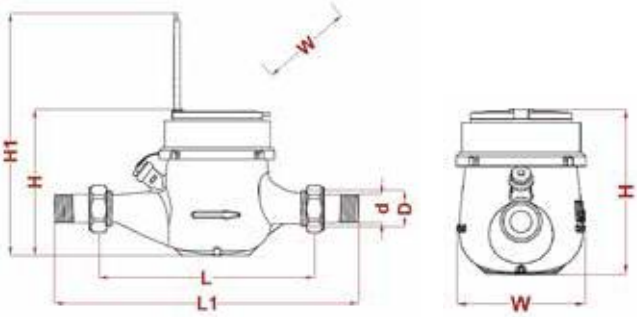
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (RO - 2275- 15286)
- The Quality Assurance of Production Process (Module D)
- Sanitary Compliance or Health Certificate (WRAS)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	15
		Size	Inch	½˝
	Overall Lenght Without Connectors	L	mm	165(')
	Overall Lenght With Connectors	L1	mm	230
	Thread Meter GxB	D	Inch	¾"
	Thread Connector	d	Inch	½"
	Total Height	H	mm	106
	Total Height (With Lid)	H1	mm	170
	Width Approx	W	mm	84,5
	Weight Approx	*	kg	1,04
	Package Without Connectors	*	kg	1,08
	Package With Connectors	*	kg	1,23
	Box Dimension (1 unite)	*	cm	19x10x9
	Package Dimension (10 unite)	*	cm	49x23x20
	Quantity Per Package	*	unite	10

(')Also available in length 190 mm
Threading : EN ISO 228-1 : 2003

Marking:

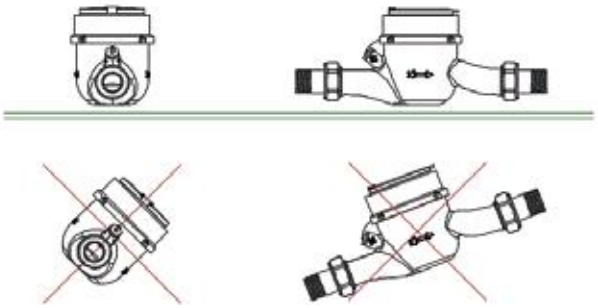
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

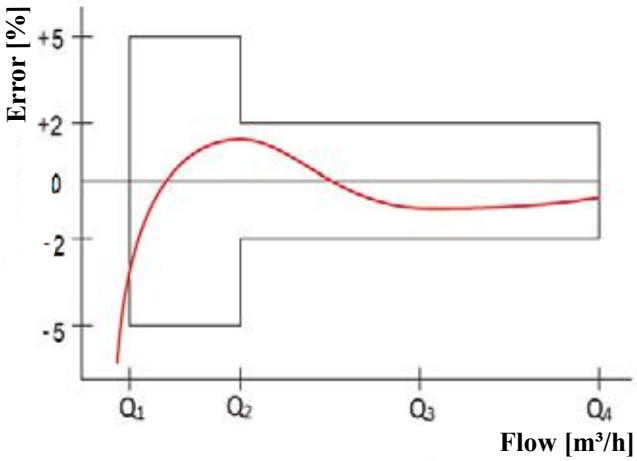


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

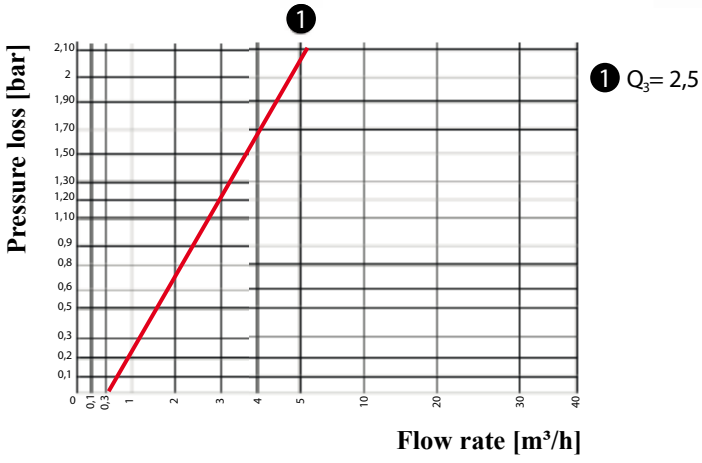
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Mercan (P) retrofittable with reed pulser: 1/10/100/1000 (Standard: 10 l/pulse, optional: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

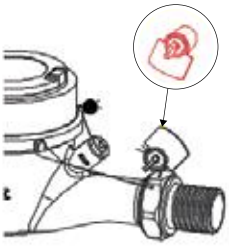
Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

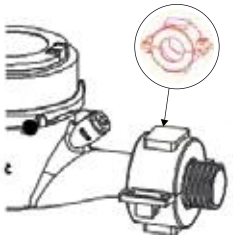
• Anti-Tampering butterfly seal for water meter

Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.



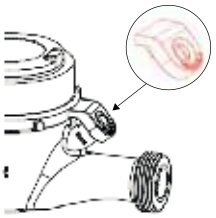
• Anti-Tampering plastic seal for water meter connectors

Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

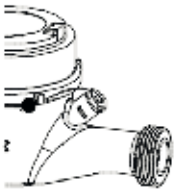


• Meter Seals

The meter is sealed by the plastic sealing apparatus (1) or sealing materials which are stainless steel wire (2) 1.00 mm thickness - optional (covered with plastic) and aluminium seal.



(1) Plastic Apparatus Seal

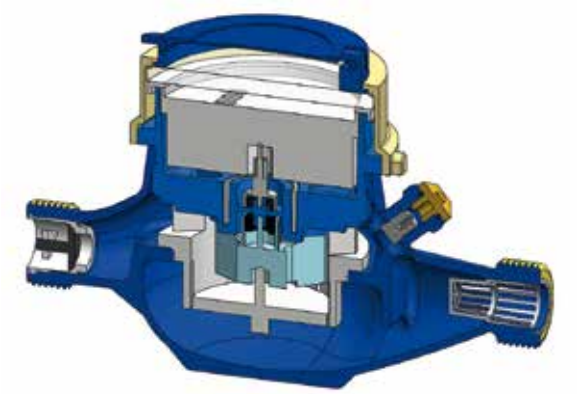


(2) Stainless Steel Seal

Performance Data		**Nominal Daimeter (DN)**	**DN**	**mm**	**15**
			Size	**Inch**	**½˝**
	Metrological Data	Maximum Flow Rate (m³/h)	Q4		≤3.13
		Nominal Flow Rate (m³/h)	Q3		≤2.50
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.025
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.0156
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		160 H (Class C)
		Measuring Transitional Flow Rate	Q2 / Q1		1.6
		Measuring Maximum Flow Rate	Q4 /Q3		1.25
		Accuracy Class			2
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPE$_U$)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C
		Temperature Class	T °C		T30 and T50
		Water Pressure Classes	MAP (Bar)		16
		Pressure - Loss Classes	Δ P (Bar)		0,63
		Max. Indicating Range	[m³]		99 999
		Resolution Of The Indicating Device	[litre]		0,05
		Instalation Positions			H
		Flow Profile Sensitivity Classes			U0 D0
		Impulse Value	litre/pulse		1 , 10 , 100 , 1000
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	MATERIAL
1	BODY (BRASS)
2	LID
3	GLASS
4	REGISTER CAP (BRASS)
5	GASKET
6	REGISTER
7	CENTRAL GEAR
8	ANTIMAGNETIC METAL RING
9	CLAMPING METARIAL
10	TURBINE / VANE WHEEL
11	MEASURING CHAMBER
12	ADJUSTING PLUG
13	ADJUSTING SCREW
14	STRAINER
15	NON - RETURN VALVE

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of press brass alloy containing not less than 58% copper.
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

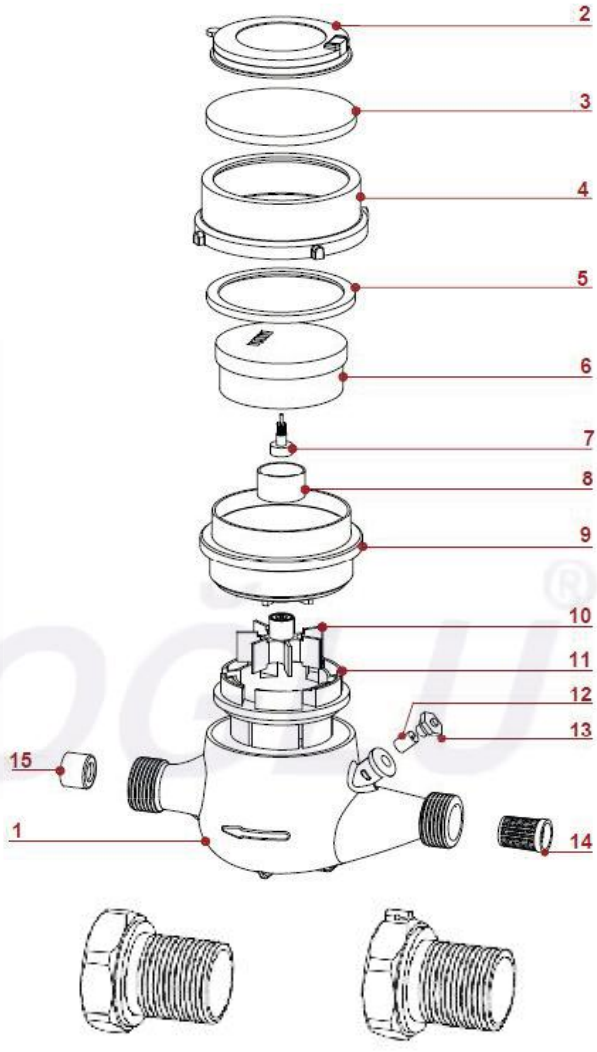
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is 360° rotating and made of hard polymer.

• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.



(1) Connector without hole for sealing (2) Connector with hole for sealing

MERCAN Serie (DN15)
Multi-Jet Dry Dial Water Meter for Cold Water

R100 MID

CLASS B ISO

Main Characteristics:

Approved in accordance with MID
Multi-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer and non return valve
Removable measuring mechanism
Metrological range -horizontal- R100 (Class B)
360° rotating lid
Horizontal installation
Magnetic transmission
Register cap made of brass
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
External adjustable screw
Water temperature up to 50°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

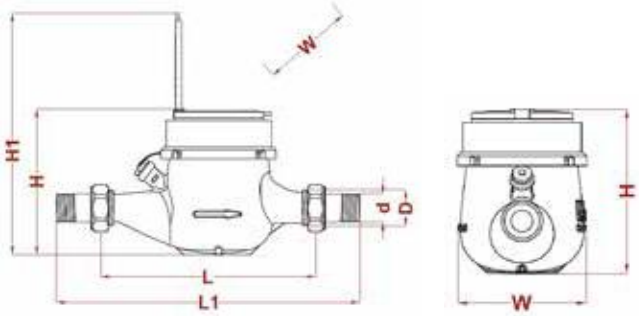
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (RO - 2275- 15286)
- The Quality Assurance of Production Process (Module D)
- Sanitary Compliance or Health Certificate (WRAS)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	15
		Size	Inch	½"
	Overall Lenght Without Connectors	L	mm	165(')
	Overall Lenght With Connectors	L1	mm	230
	Thread Meter GxB	D	Inch	¾"
	Thread Connector	d	Inch	½"
	Total Height	H	mm	106
	Total Height (With Lid)	H1	mm	170
	Width Approx	W	mm	84,5
	Weight Approx	*	kg	1,04
	Package Without Connectors	*	kg	1,08
	Package With Connectors	*	kg	1,23
	Box Dimension (1 unite)	*	cm	19x10x9
	Package Dimension (10 unite)	*	cm	49x23x20
	Quantity Per Package	*	unite	10

(')Also available in length 190 mm
Threading : EN ISO 228-1 : 2003

Marking:

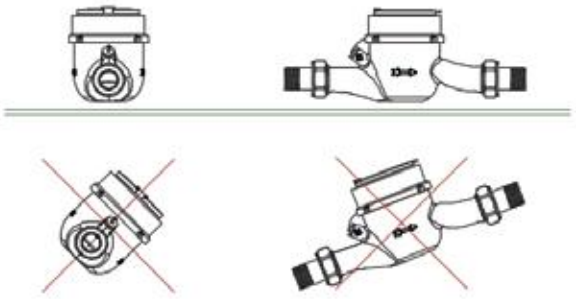
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

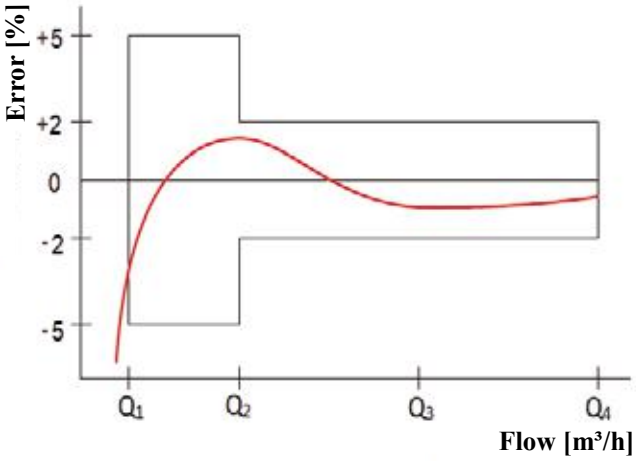


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

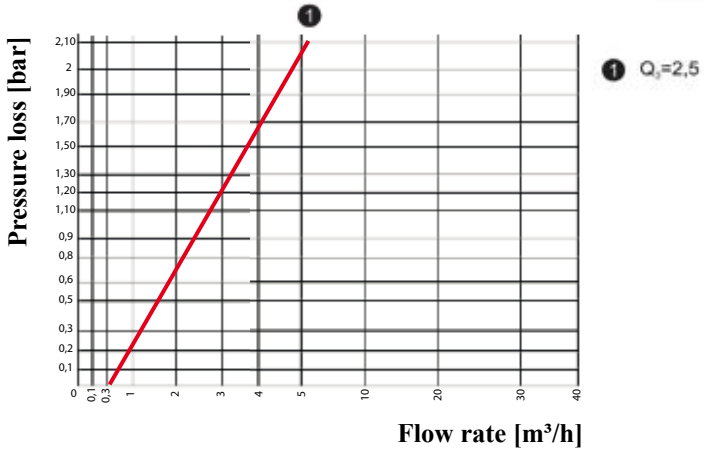
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Mercan (P) retrofittable with reed pulser: 1/10/100/1000 (Standard: 10 l/pulse, optional: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

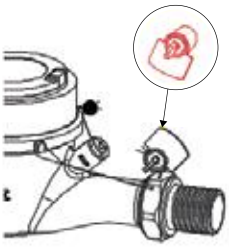
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

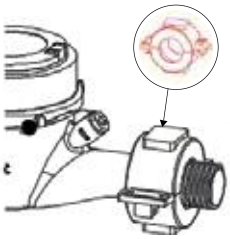
• Anti-Tampering plastic seal for water meter connectors

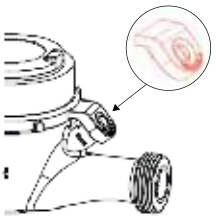
Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

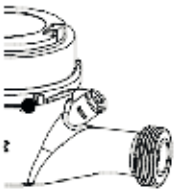
• Meter Seals

The meter is sealed by the plastic sealing apparatus (1) or sealing materials which are stainless steel wire (2) 1.00 mm thickness - optional (covered with plastic) and aluminium seal.









(1) Plastic Apparatus Seal

(2) Stainless Steel Seal

Performance Data	Metrological Data	Nominal Daimeter (DN)	DN	mm	15
			Size	Inch	½˝
		Maximum Flow Rate (m^3/h)	Q4		≤3.13
		Nominal Flow Rate (m^3/h)	Q3		≤2.50
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.040
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.025
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		100 H (Class B)
		Measuring Transitional Flow Rate	Q2 / Q1		1.6
		Measuring Maximum Flow Rate	Q4 /Q3		1.25
		Accuracy Class			2
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C
		Temperature Class	T °C		T30 and T50
		Water Pressure Classes	MAP (Bar)		16
		Pressure - Loss Classes	Δ P (Bar)		0,63
		Max. Indicating Range	[m^3]		99 999
		Resolution Of The Indicating Device	[litre]		0,05
		Instalation Positions			H
		Flow Profile Sensitivity Classes			U0 D0
		Impulse Value	litre/pulse		1 , 10 , 100 , 1000
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
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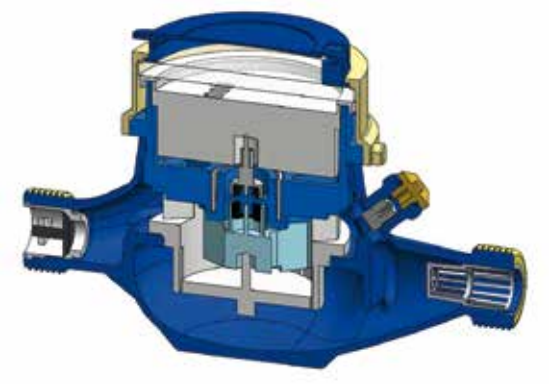


	MATERIAL
1	BODY (BRASS)
2	LID
3	GLASS
4	REGISTER CAP (BRASS)
5	GASKET
6	REGISTER
7	CENTRAL GEAR
8	ANTIMAGNETIC METAL RING
9	CLAMPING METARIAL
10	TURBINE / VANE WHEEL
11	MEASURING CHAMBER
12	ADJUSTING PLUG
13	ADJUSTING SCREW
14	STRAINER
15	NON - RETURN VALVE

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of press brass alloy containing not less than 58% copper.
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

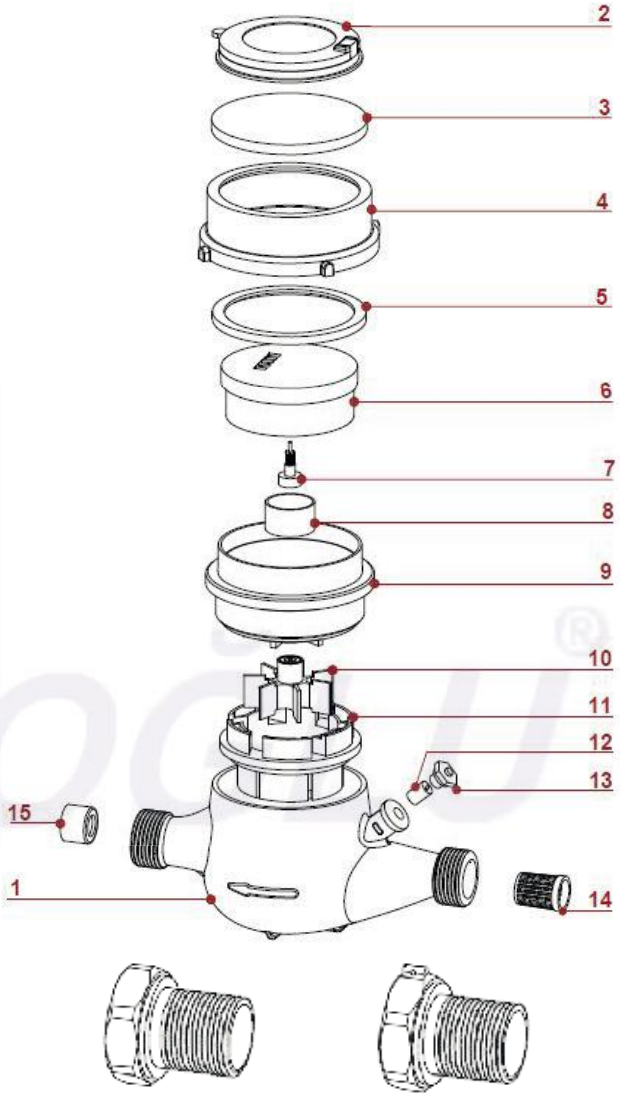
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is 360° rotating and made of hard polymer.

• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.



(1) Connector without hole for sealing (2) Connector with hole for sealing

MERCAN Serie (DN20)
Multi-Jet Dry Dial Water Meter for Cold Water

R160 MID

CLASS C ISO

Main Characteristics:

Approved in accordance with MID
Multi-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer and non return valve
Removable measuring mechanism
Metrological range -horizontal- R160 (Class C)
360° rotating lid
Horizontal installation
Magnetic transmission
Register cap made of brass
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
External adjustable screw
Water temperature up to 50°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless), RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

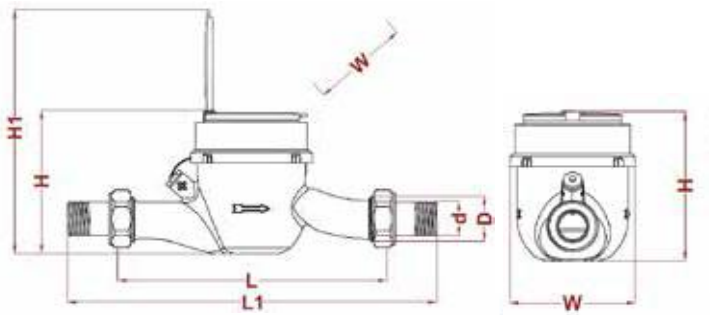
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (RO - 2275- 15286)
- The Quality Assurance of Production Process (Module D)
- Sanitary Compliance or Health Certificate (WRAS)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	20
		Size	Inch	¾″
	Overall Lenght Without Connectors	L	mm	190
	Overall Lenght With Connectors	L1	mm	260
	Thread Meter GxB	D	Inch	1″
	Thread Connector	d	Inch	¾″
	Total Height	H	mm	95,8
	Total Height (With Lid)	H1	mm	160,5
	Width Approx	W	mm	84,5
	Weight Approx	*	kg	0,94
	Package Without Connectors	*	kg	1,00
	Package With Connectors	*	kg	1,13
	Box Dimension (1 unite)	*	cm	19x10x9
	Package Dimension (10 unite)	*	cm	49×23×20
	Quantity Per Package	*	unite	10

Threading : EN ISO 228-1 : 2003

Marking:

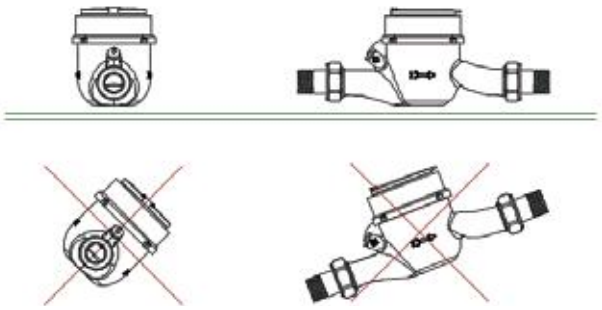
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

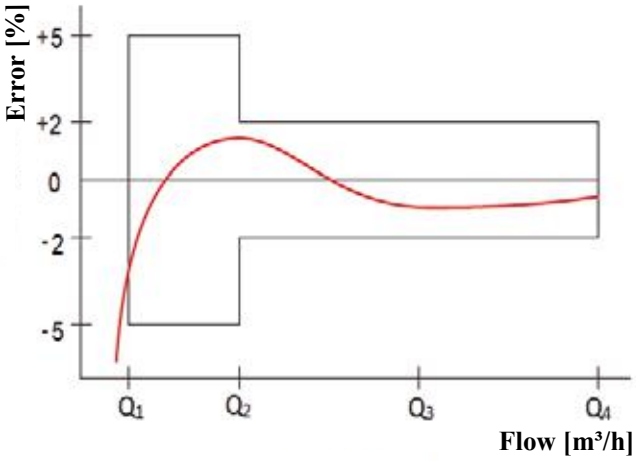


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

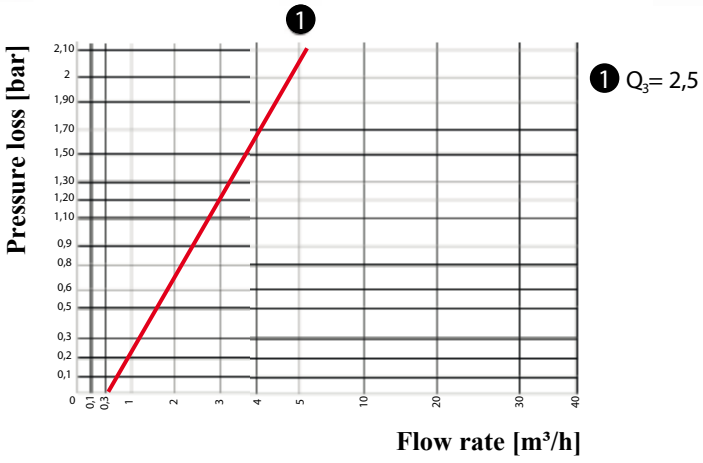
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Mercan (P) retrofittable with reed pulser: 1/10/100/1000 (Standard: 10 l/pulse, optional: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

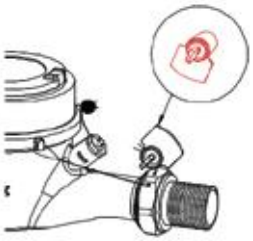
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

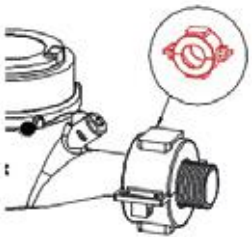
• Anti-Tampering plastic seal for water meter connectors

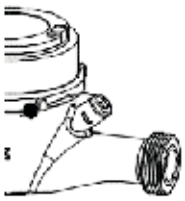
Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seals

The meter is sealed by the plastic sealing apparatus (1) or sealing materials which are stainless steel wire (2) 1.00 mm thickness - optional (covered with plastic) and aluminium seal.







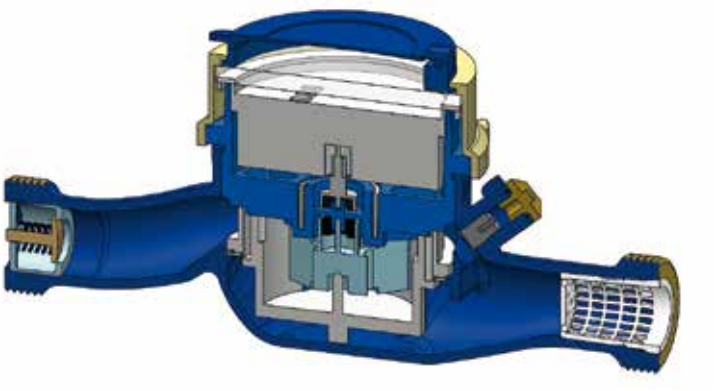
(1) Plastic Apparatus Seal

(2) Stainless Steel Seal

Performance Data	Metrological Data	Nominal Daimeter (DN)	DN	mm	20
			Size	Inch	¾″
		Maximum Flow Rate (m^3/h)	Q4		≤3.13
		Nominal Flow Rate (m^3/h)	Q3		≤2.50
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.025
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.0156
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		160 H (Class C)
		Measuring Transitional Flow Rate	Q2 / Q1		1.6
		Measuring Maximum Flow Rate	Q4 /Q3		1.25
		Accuracy Class			2
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C
		Temperature Class	T °C		T30 and T50
		Water Pressure Classes	MAP (Bar)		16
		Pressure - Loss Classes	Δ P (Bar)		0,63
		Max. Indicating Range	[m^3]		99 999
		Resolution Of The Indicating Device	[litre]		0,05
		Instalation Positions			H
		Flow Profile Sensitivity Classes			U0 D0
		Impulse Value	litre/pulse		1 , 10 , 100 , 1000
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	MATERIAL
1	BODY (BRASS)
2	LID
3	GLASS
4	REGISTER CAP (BRASS)
5	GASKET
6	REGISTER
7	CENTRAL GEAR
8	ANTIMAGNETIC METAL RING
9	CLAMPING METARIAL
10	TURBINE / VANE WHEEL
11	MEASURING CHAMBER
12	ADJUSTING PLUG
13	ADJUSTING SCREW
14	STRAINER
15	NON - RETURN VALVE

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of press brass alloy containing not less than 58% copper.
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

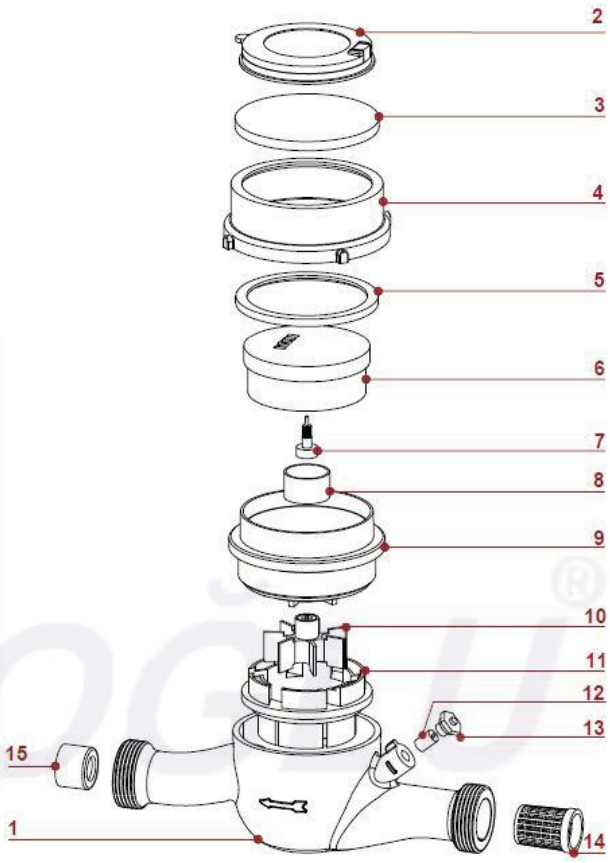
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is 360° rotating and made of hard polymer.

• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.



(1) Connector without hole for sealing (2) Connector with hole for sealing

MERCAN Serie (DN20)
Multi-Jet Dry Dial Water Meter for Cold Water

Main Characteristics:

Approved in accordance with MID
Multi-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer and non return valve
Removable measuring mechanism
Metrological range -horizontal- R100 (Class B)
360° rotating lid
Horizontal installation
Magnetic transmission
Register cap made of brass
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
External adjustable screw
Water temperature up to 50°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless), RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

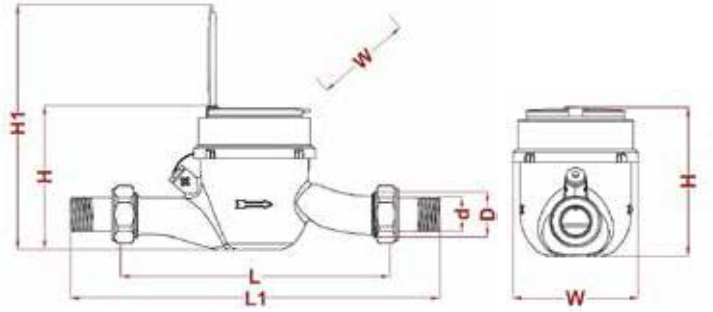
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (RO - 2275- 15286)
- The Quality Assurance of Production Process (Module D)
- Sanitary Compliance or Health Certificate (WRAS)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	20
		Size	Inch	¾″
	Overall Lenght Without Connectors	L	mm	190
	Overall Lenght With Connectors	L1	mm	260
	Thread Meter GxB	D	Inch	1″
	Thread Connector	d	Inch	¾″
	Total Height	H	mm	95,8
	Total Height (With Lid)	H1	mm	160,5
	Width Approx	W	mm	84,5
	Weight Approx	*	kg	0,94
	Package Without Connectors	*	kg	1,00
	Package With Connectors	*	kg	1,13
	Box Dimension (1 unite)	*	cm	19x10x9
	Package Dimension (10 unite)	*	cm	49×23×20
	Quantity Per Package	*	unite	10

Threading : EN ISO 228-1 : 2003

Marking:

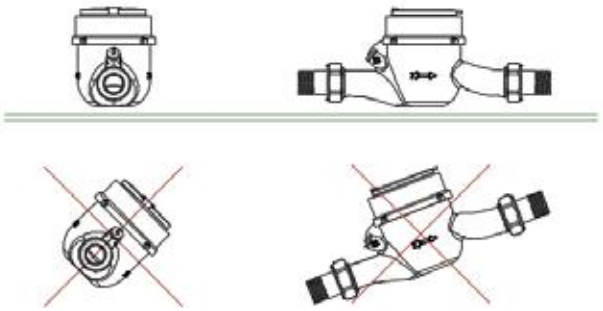
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

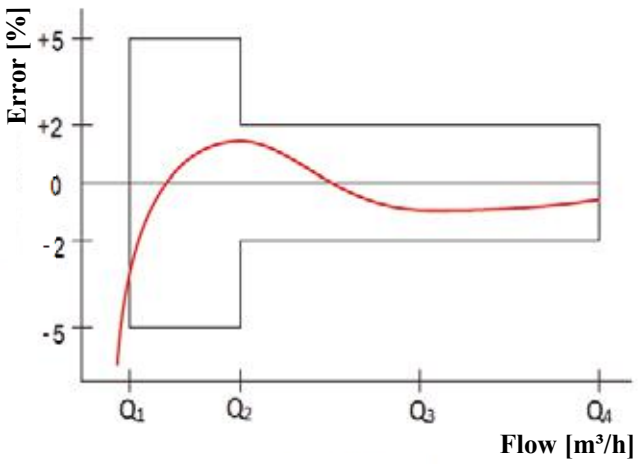


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

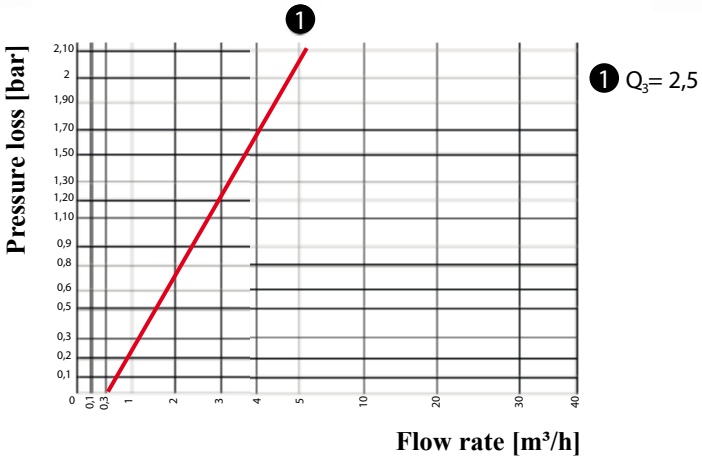
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Mercan (P) retrofittable with reed pulser: 1/10/100/1000 (Standard: 10 l/pulse, optional: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

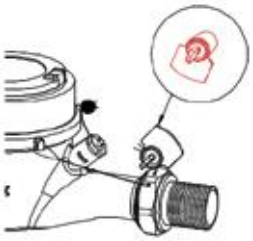
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

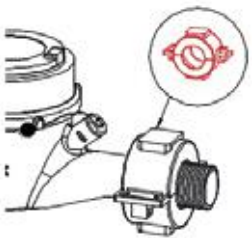
• Anti-Tampering plastic seal for water meter connectors

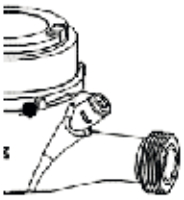
Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seals

The meter is sealed by the plastic sealing apparatus (1) or sealing materials which are stainless steel wire (2) 1.00 mm thickness - optional (covered with plastic) and aluminium seal.







(1) Plastic Apparatus Seal

(2) Stainless Steel Seal

Performance Data	Metrological Data	**Nominal Daimeter (DN)**	**DN**	**mm**	**20**
			Size	**Inch**	**¾″**
		Maximum Flow Rate (m^3/h)	Q4		≤3.13
		Nominal Flow Rate (m^3/h)	Q3		≤2.50
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.040
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.025
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		100 H (Class B)
		Measuring Transitional Flow Rate	Q2 / Q1		1.6
		Measuring Maximum Flow Rate	Q4 /Q3		1.25
		Accuracy Class			2
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C
		Temperature Class	T °C		T30 and T50
		Water Pressure Classes	MAP (Bar)		16
		Pressure - Loss Classes	Δ P (Bar)		0,63
		Max. Indicating Range	[m^3]		99 999
		Resolution Of The Indicating Device	[litre]		0,05
		Instalation Positions			H
		Flow Profile Sensitivity Classes			U0 D0
		Impulse Value	litre/pulse		1 , 10 , 100 , 1000
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
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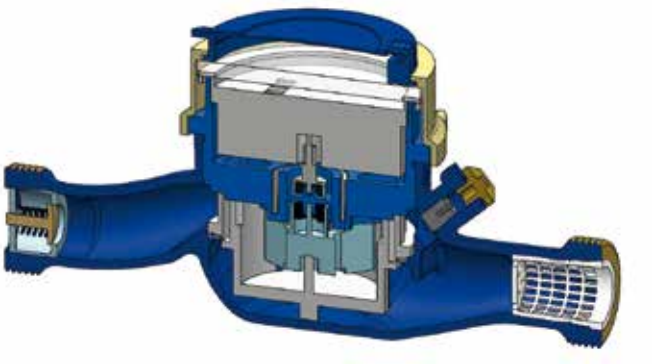


	MATERIAL
1	BODY (BRASS)
2	LID
3	GLASS
4	REGISTER CAP (BRASS)
5	GASKET
6	REGISTER
7	CENTRAL GEAR
8	ANTIMAGNETIC METAL RING
9	CLAMPING METARIAL
10	TURBINE / VANE WHEEL
11	MEASURING CHAMBER
12	ADJUSTING PLUG
13	ADJUSTING SCREW
14	STRAINER
15	NON - RETURN VALVE

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of press brass alloy containing not less than 58% copper.
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

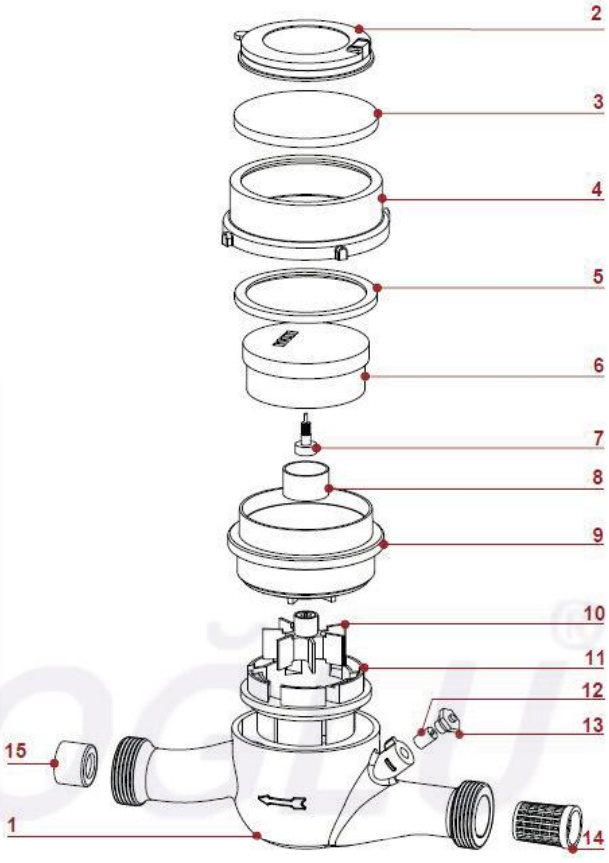
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is 360° rotating and made of hard polymer.

• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.



(1) Connector without hole for sealing (2) Connector with hole for sealing

MERCAN Serie (DN25, DN32, DN40, DN50)
Multi-Jet Dry Dial Water Meter for Cold Water

R100 MID

CLASS B ISO

Main Characteristics:

Approved in accordance with MID
Multi-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer and non return valve
Removable measuring mechanism
Metrological range -horizontal- R100 (Class B)
360° rotating lid
Horizontal installation
Magnetic transmission
Register cap two parts made of brass
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
External adjustable screw
(QR) Code to send data for viewing - optional
Water temperature up to 50°C
Equipable with Pulse output, MBus (Wire, Wireless), RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

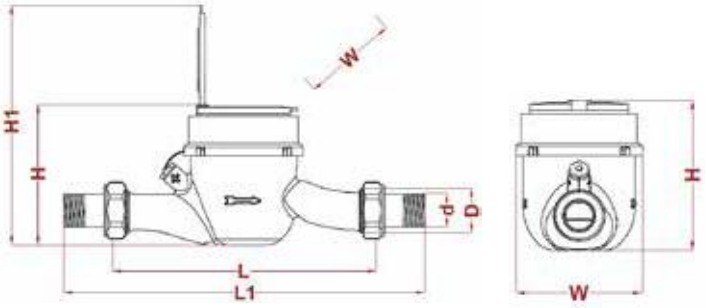
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (RO - 2275- 15286)
- The Quality Assurance of Production Process (Module D)
- Sanitary Compliance or Health Certificate (WRAS)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	25	32	40	50
		Size	Inch	1"	1¼"	1½"	2"
	Overall Lenght Without Connectors	L	mm	260	260	300	300
	Overall Lenght With Connectors	L1	mm	345,5	341,45	386,4	400
	Thread Meter GxB	D	Inch	1¼"	1½"	2"	2½"
	Thread Connector	d	Inch	1"	1¼"	1½"	2"
	Total Height	H	mm	115	113,45	142	142
	Total Height (With Lid)	H1	mm	180	180	210	210
	Width Approx	W	mm	90,3	90,3	110	110
	Weight Approx	*	kg	2,05	2,03	4,30	4,65
	Package Without Connectors	*	kg	2,15	2,14	4,45	4,80
	Package With Connectors	*	kg	2,50	2,54	5,05	5,76
	Box Dimension (1 unite)	*	cm	27x14x11		31x17x14	
	Package Dimension (10 unite)	*	cm	57x28x15		44x33x20	
	Quantity Per Package	*	unite	5		3	

Threading : EN ISO 228-1 : 2003

Marking:

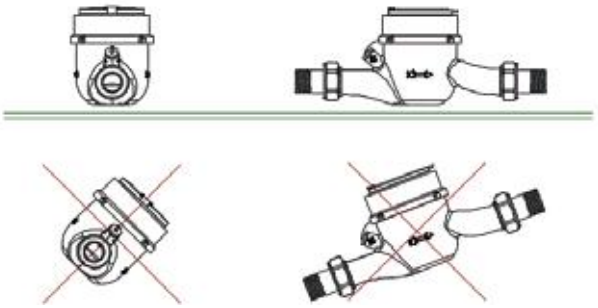
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

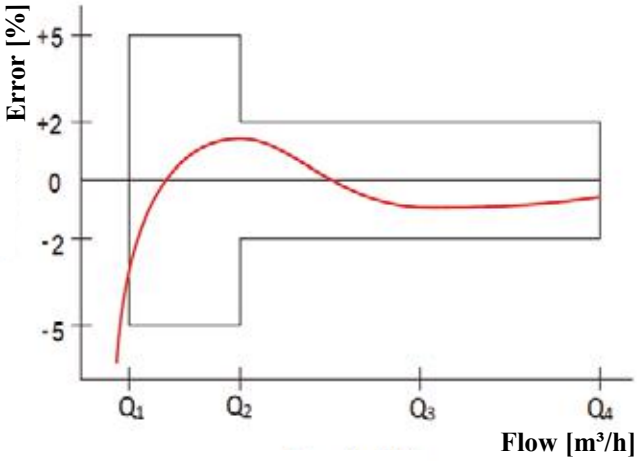


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

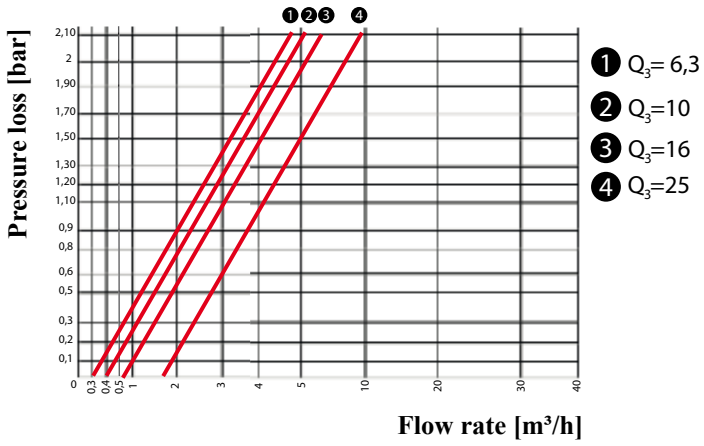
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Mercan (P) retrofittable with reed pulser: 100/1000 (Standard: 100 l/pulse, optional: 1000 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1 = Minimum Flowrate
Q_2 = Transitional Flowrate
Q_3 = Permanent Flowrate
Q_4 = Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

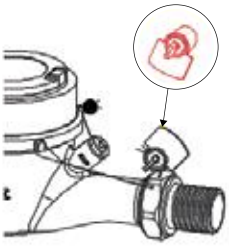
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

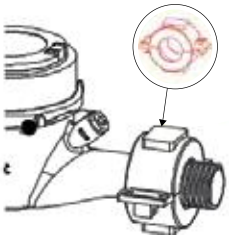
• Anti-Tampering plastic seal for water meter connectors

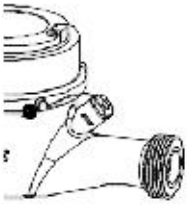
Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seal

Sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.





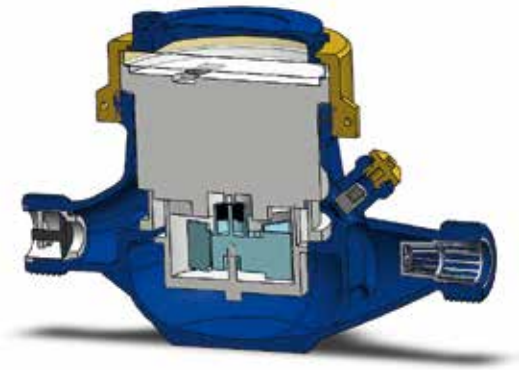


Stainless Steel Seal

		Nominal Daimeter (DN)	DN / Size	mm / Inch	25 / 1˝	32 / 1˝¼	40 / 1˝½	50 / 2˝
Performance Data	Metrological Data	Maximum Flow Rate (m^3/h)	Q4		≤7.88	≤12.5	≤20	≤31,3
		Nominal Flow Rate (m^3/h)	Q3		≤6.30	≤10	≤16	≤25
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.10	≤0.16	≤0.256	≤0.40
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.063	≥0.010	≥0.016	≥0.025
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		100 H (Class B)			
		Measuring Transitional Flow Rate	Q2 / Q1		1.6			
		Measuring Maximum Flow Rate	Q4 /Q3		1.25			
		Accuracy Class			2			
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%			
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C			
		Temperature Class	T °C		T30 and T50			
		Water Pressure Classes	MAP (Bar)		16			
		Pressure - Loss Classes	Δ P (Bar)		0,63			
		Max. Indicating Range	[m^3]		99 999		999 999	
		Resolution Of The Indicating Device	[litre]		0,05			
		Instalation Positions			H			
		Flow Profile Sensitivity Classes			U0 , D0			
		Impulse Value	litre/pulse		100 , 1000			
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR			

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	MATERIAL
1	BODY (BRASS)
2	LID
3	REGISTER CAP (BRASS)
4	GASKET
5	GLASS
6	REGISTER
6.1	ANTIMAGNETIC METAL RING
7	GASKET
8	TURBINE / VANE WHEEL
9	MEASURING CHAMBER
10	ADJUSTING SCREW
11	ADJUSTING PLUG
12	STRAINER
13	NON - RETURN VALVE

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ for DN25 and DN32 (6 digits numeric rolls for m³ for DN40 and DN50) and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of press brass alloy containing not less than 58% copper.
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

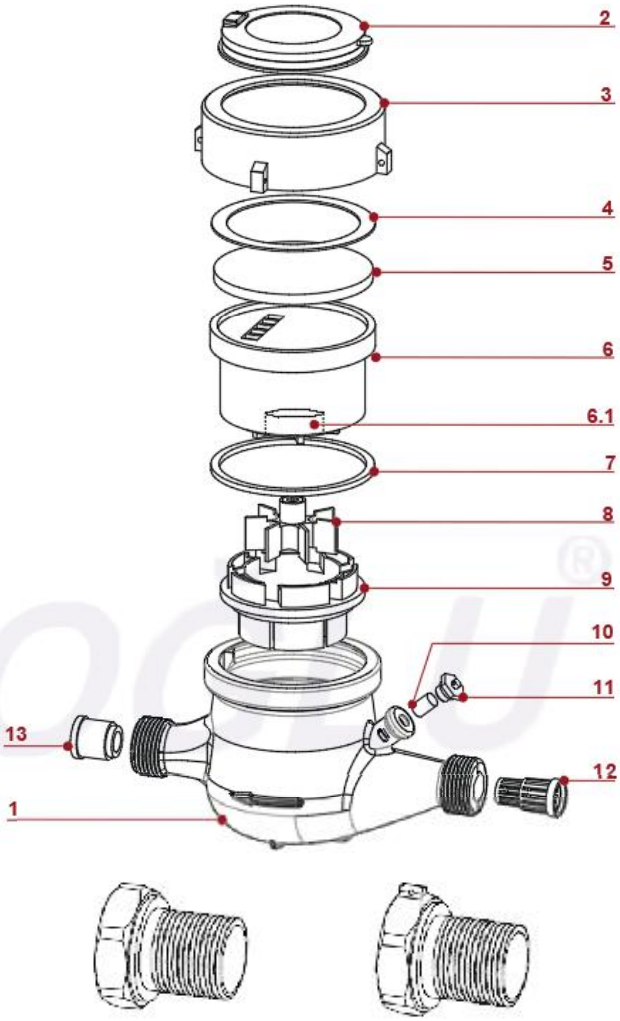
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is 360° rotating and made of hard polymer.

• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.



(1) Connector without hole for sealing (2) Connector with hole for sealing

NUR Serie (DN15 ~ DN20)
Volumetric - Rotary Piston Type
Water Meter for Cold Water

R315 MID

CLASS D ISO

Main Characteristics:

Approved in accordance with MID
Rotary piston type register type
Brass & Composite housing material
Durable internal removable strainer and non return valve
Removable measuring mechanism
High metrological range up to R400
360° rotating lid
Installation in any position
Magnetic transmission
Register cap made of brass
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
Water temperature up to 50°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

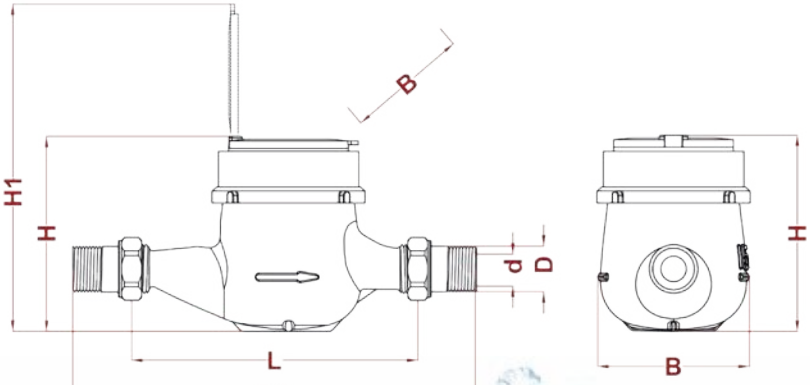
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (Module B)
- The Quality Assurance of Production Process (Module D)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	15	20
		Size	Inch	½″	¾″
	Overall Lenght Without Connectors	L	mm	165	190
	Overall Lenght With Connectors	L1	mm	230	260
	Thread Meter GxB	D	Inch	¾″	1″
	Thread Connector	d	Inch	½″	¾″
	Total Height	H	mm	112,45	112,45
	Total Height (With Lid)	H1	mm	184,65	184,65
	Width Approx	W	mm	85,00	85,00
	Weight Approx	*	kg	1,225	1,50
	Package Without Connectors	*	kg	1,23	1,55
	Package With Connectors	*	kg	1,244	1,69
	Box Dimension (1 unite)	*	cm	19x10x9	19x10x9
	Package Dimension (30 unite)	*	cm	49x23x20	49x23x20
	Quantity Per Package	*	unite	10	10

Threading : EN ISO 228-1 : 2003

Marking:

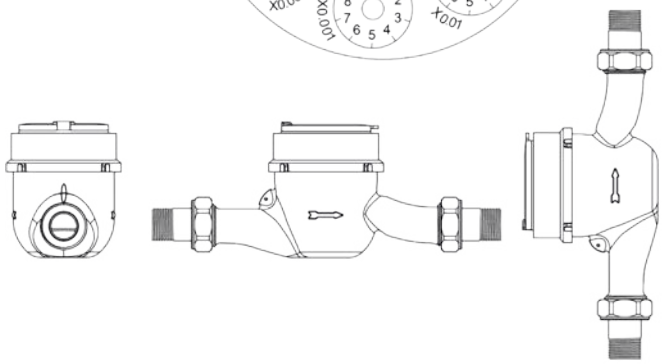
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

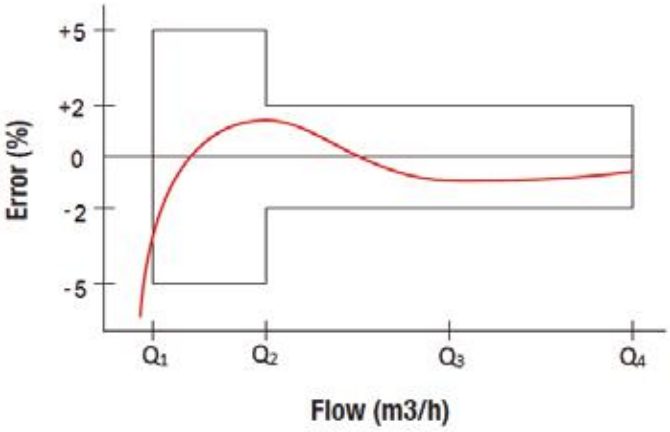


Pulse Emitter Device:

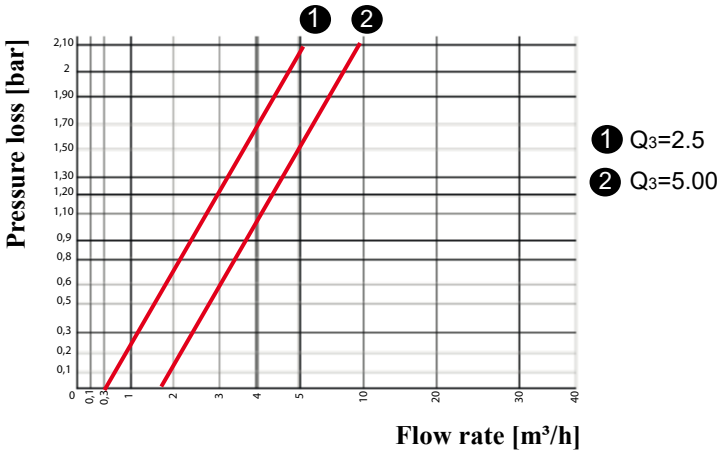
Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Mercan (P) retrofittable with reed pulser: 1/10/100/1000 (Standard: 10 l/pulse, optional: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



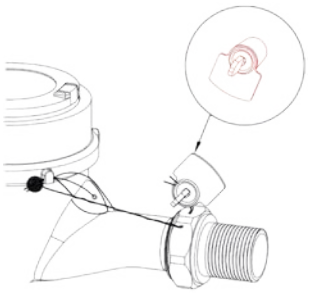
Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

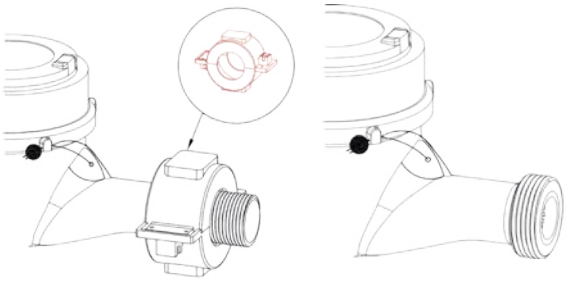


• Anti-Tampering plastic seal for water meter connectors

Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.



Stainless Steel Seal

Performance Data	Metrological Data	Nominal Daimeter (DN)	DN	mm	15	20
			Size	Inch	½″	¾″
		Maximum Flow Rate (m³/h)	Q4		≤3.125	≤3,125 / 5.00
		Nominal Flow Rate (m³/h)	Q3		≤2.5	≤2.5 / 4.00
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤25	≤25 / 40
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥15.62	≥15,62 / 25
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		≥160	
		Measuring Transitional Flow Rate	Q2 / Q1		1.6	
		Measuring Maximum Flow Rate	Q4 /Q3		1.25	
		Accuracy Class			2	
	Technical Data	Maximum Permissible Error For The Lower Flow Rate Zone	(MPE1)		±5%	
		Maximum Permissible Error For The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C	
		Temperature Class	T °C		T30 and T50	
		Water Pressure Classes	MAP (Bar)		16	
		Pressure - Loss Classes	ΔP (Bar)		0,63	
		Max. Indicating Range	[m³]		99 999	
		Resolution Of The Indicating Device	[litre]		0,05	
		Instalation Positions			H/V	
		Flow Profile Sensitivity Classes			U0 D0	
		Impulse Value	litre/pulse		1 , 10 , 100 , 1000	
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR	

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
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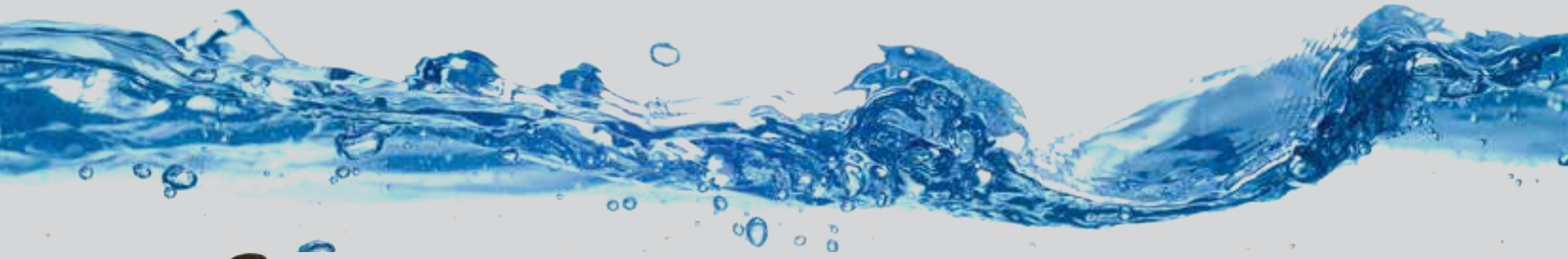
TÜRKOĞLU®
VALVES AND ARMATURE

twm®
TURKOGLU WATER METER

QUALITY IN THE INDUSTRY, TRUST AND STABILITY ADDRESS



ŞENSOYLAR GROUP | TÜRKOĞLU VALVES AND ARMATURE | TURC FLEX FLEXIBLE METAL HOSES | twm | TİEM | STRAWPANEL | nature

ERCIYES Serie (DN15, DN20)
Composite Polyamide / Plastic
Multi-Jet Dry Dial Water Meter for Cold Water

R80 MID
CLASS B ISO

Main Characteristics:

Approved in accordance with MID
Multi - Jet dry dial register type with vane-wheel
Composite polyamide / strong plastic housing material
Durable internal removable strainer
Removable measuring mechanism
Metrological range -horizontal- R80 (Class B)
Horizontal installation
Magnetic transmission
Register cap made of composite polyamide / strong plastic
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Black or Blue colour
Water temperature up to 50°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

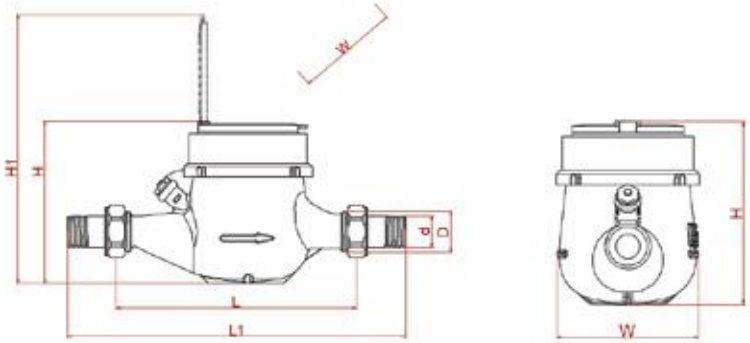
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (TCM - 142 / 14 - 5171)
- The Quality Assurance of Production Process (Module D)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	15	20
		Size	Inch	½˝	¾˝
	Overall Lenght Without Connectors	L	mm	165	190
	Overall Lenght With Connectors	L1	mm	260	300
	Thread Meter GxB	D	Inch	¾˝	1˝
	Thread Connector	d	Inch	½˝	¾˝
	Total Height	H	mm	117	113
	Total Height (With Lid)	H1	mm	200	200
	Width Approx	W	mm	94,5	93,5
	Weight Approx	*	kg	0,55	0,58
	Package Without Connectors	*	kg	0,59	0,62
	Package With Connectors	*	kg	0,65	0,71
	Box Dimension (1 unite)	*	cm	19x10x9	19x10x9
	Package Dimension (30 unite)	*	cm	49x23x20	49x23x20
	Quantity Per Package	*	unite	10	10

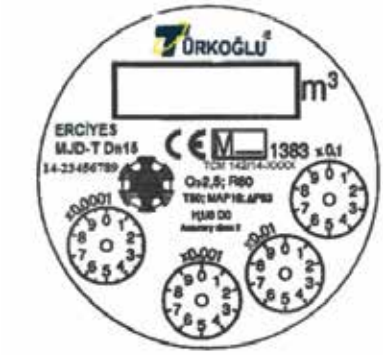
Threading : EN ISO 228-1 : 2003

Marking:

The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

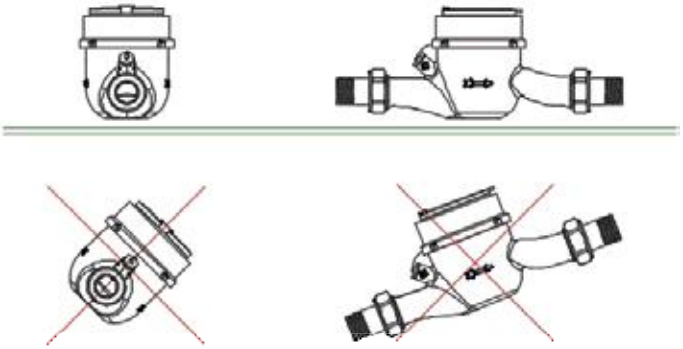
Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.



Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

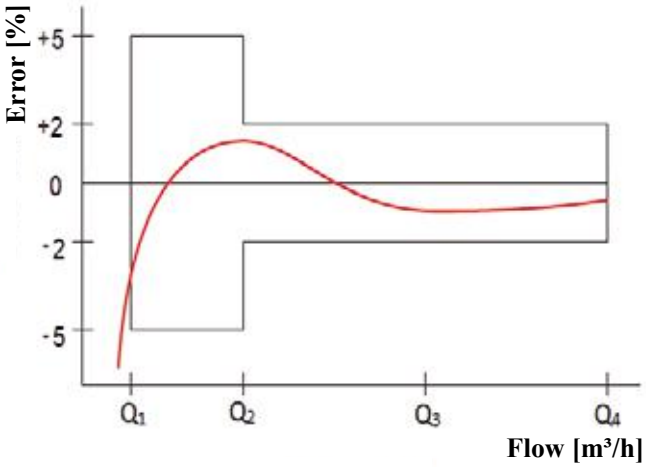


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

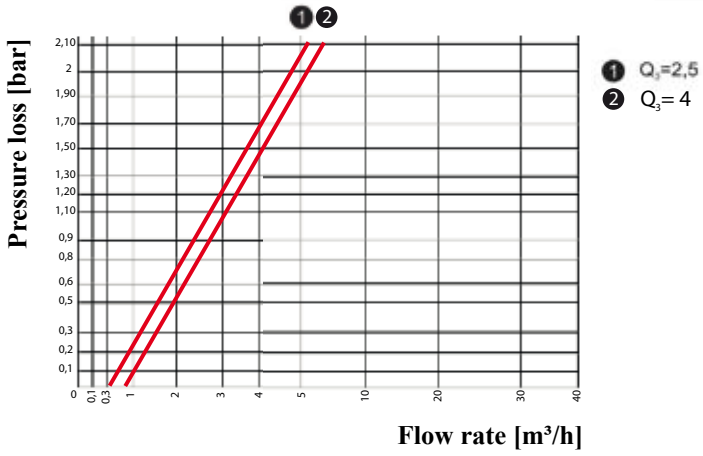
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Erciyes (P) retrofittable with reed pulser:1/10/100/1000 (Standard: 10 l/pulse, optional: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1 = Minimum Flowrate
Q_2 = Transitional Flowrate
Q_3 = Permanent Flowrate
Q_4 = Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

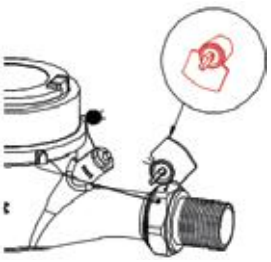
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

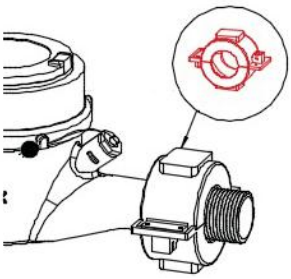
• Anti-Tampering plastic seal for water meter connectors

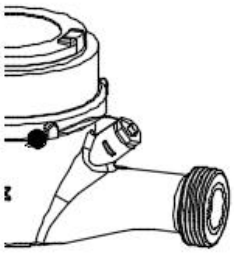
Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.





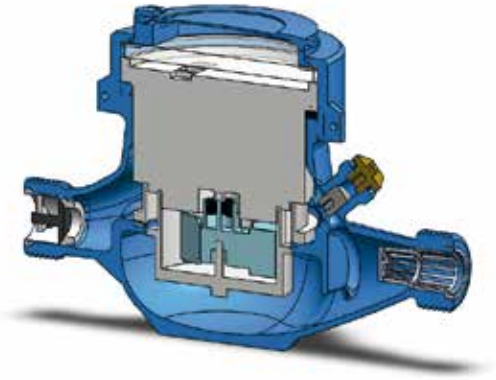


Stainless Steel Seal

Performance Data	Metrological Data	**Nominal Daimeter (DN)**	**DN**	**mm**	**15**	**20**
			Size	**Inch**	**½″**	**¾″**
		Maximum Flow Rate (m³/h)	Q4		≤3.13	≤5.00
		Nominal Flow Rate (m³/h)	Q3		≤2.5	≤4.00
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.0500	≤0.0800
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.0313	≥0.0500
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		≤80 H (Class B)	
		Measuring Transitional Flow Rate	Q2 / Q1		1.6	
		Measuring Maximum Flow Rate	Q4 /Q3		1.25	
		Accuracy Class			2	
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%	
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C	
		Temperature Class	T °C		T30 and T50	
		Water Pressure Classes	MAP (Bar)		16	
		Pressure - Loss Classes	Δ P (Bar)		0,63	
		Max. Indicating Range	[m³]		99 999	
		Resolution Of The Indicating Device	[litre]		0,05	
		Instalation Positions			H	
		Flow Profile Sensitivity Classes			U0 D0	
		Impulse Value	litre/pulse		1 , 10 , 100 , 1000	
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR	

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	MATERIAL
1	BODY (PLASTIC)
2	LID AND REGISTER CAP (PLASTIC)
3	GASKET
4	GLASS
5	REGISTER
5.1	ANTIMAGNETIC METAL RING
6	GASKET
7	TURBINE / VANE WHEEL
8	MEASURING CHAMBER
9	ADJUSTING SCREW
10	ADJUSTING PLUG
11	STRAINER
12	NON - RETURN VALVE

Legiblity & Reliability:

- **Register / Counter**

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

- **Meter Body / Housing**

The body/housing of the water meter, threaded type, make of composite polyamide / strong plastic (injection molding). A visible arrow on both sides of the body shows the direction of water flow.

- **Register Ring (Cap)**

Register Ring (Cap) make of composite polyamide / strong plastic (injection molding)
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

- **Register Protective Cover (Glass) and Register Cover (Lid)**

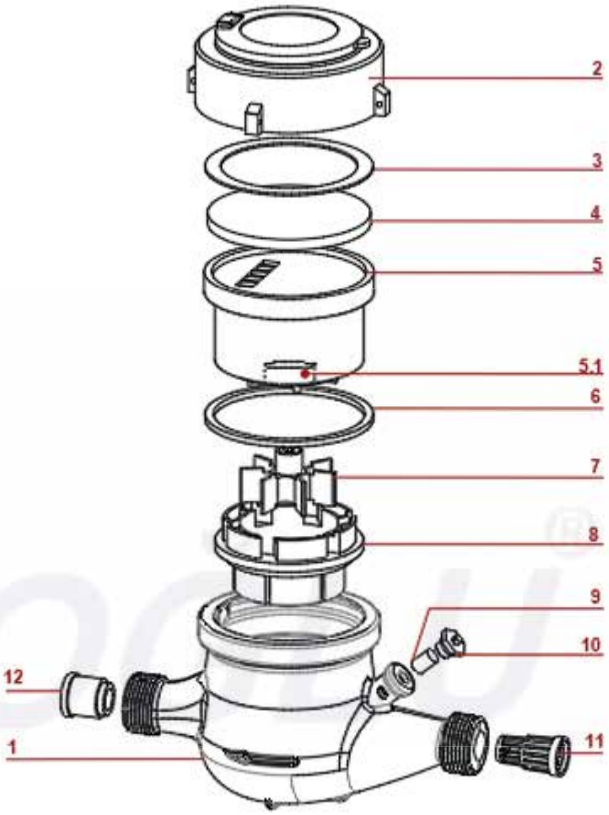
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is made of hard polymer plastic.

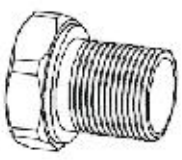
- **Strainer and Non-Return Valve**

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

- **Connector For Meter**

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of plastic couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.





Connector without hole for sealing

ERCIYES Serie (DN25, DN32, DN40, DN50)
Composite Polyamide / Plastic
Multi-Jet Dry Dial Water Meter for Cold Water

R80 MID CLASS B ISO

Main Characteristics:

Approved in accordance with MID
Multi - Jet dry dial register type with vane-wheel
Composite polyamide / strong plastic housing material
Durable internal removable strainer
Removable measuring mechanism
Metrological range -horizontal- R80 (Class B)
Horizontal installation
Magnetic transmission
Register cap made of composite polyamide / strong plastic
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Black or Blue colour
Water temperature up to 50°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

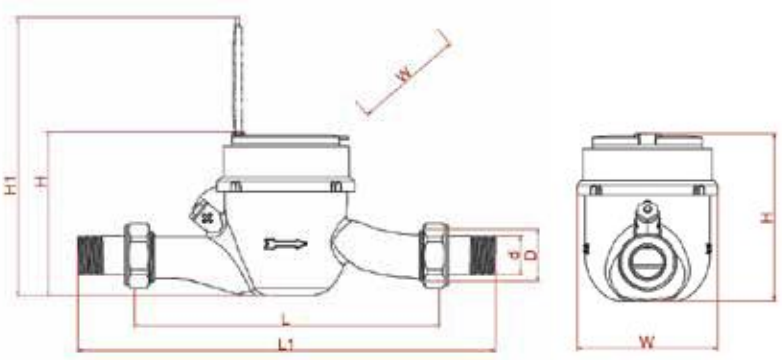
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (TCM - 142 / 14 - 5171)
- The Quality Assurance of Production Process (Module D)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	25	32	40	50
		Size	Inch	1"	1¼"	1½"	2"
	Overall Lenght Without Connectors	L	mm	230	230	250	300
	Overall Lenght With Connectors	L1	mm	346	354	375	475
	Thread Meter GxB	D	Inch	1¼"	1½"	2"	2½"
	Thread Connector	d	Inch	1"	1¼"	1½"	2"
	Total Height	H	mm	115	119	153	153,5
	Total Height (With Lid)	H1	mm	204	210	263	260
	Width Approx	W	mm	103	103	123	124
	Weight Approx	*	kg	0,70	0,77	1,22	1,50
	Package Without Connectors	*	kg	0,80	0,87	1,32	1,61
	Package With Connectors	*	kg	0,96	1,07	1,60	2,135
	Box Dimension (1 unite)	*	cm	27x14x11		31x17x14	
	Package Dimension (10 unite)	*	cm	57x28x15		44x33x20	
	Quantity Per Package	*	unite	5		3	

Threading : EN ISO 228-1 : 2003

Marking:

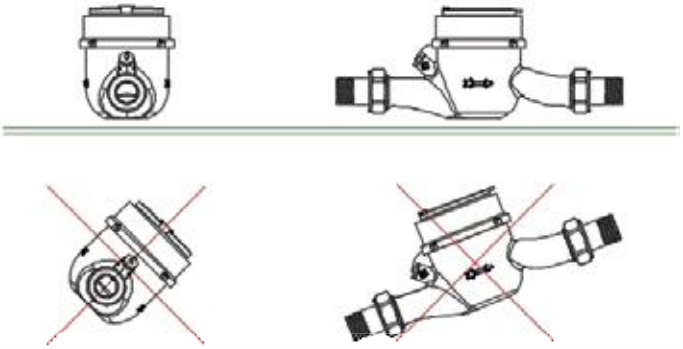
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

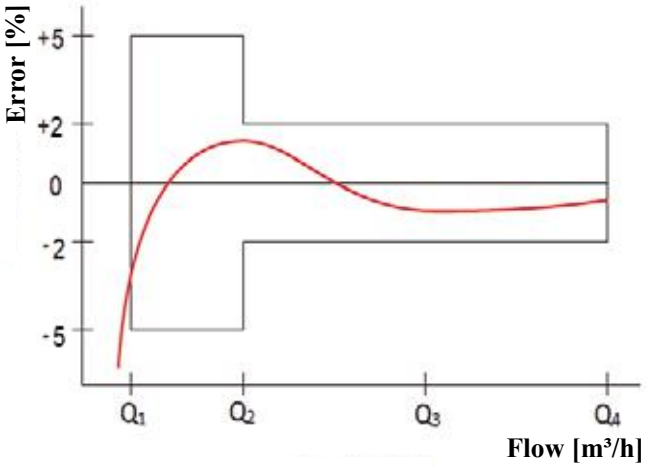


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

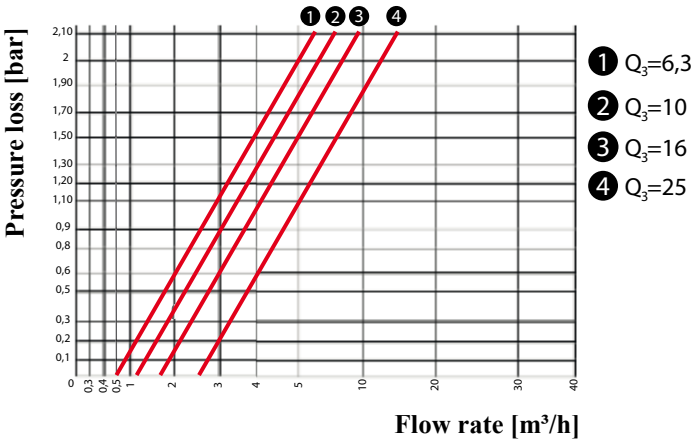
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Erciyes (P) retrofittable with reed pulser:100/1000 (Standard: optional: 100 1 /pulse.optional:1000 1/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1 = Minimum Flowrate
Q_2 = Transitional Flowrate
Q_3 = Permanent Flowrate
Q_4 = Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

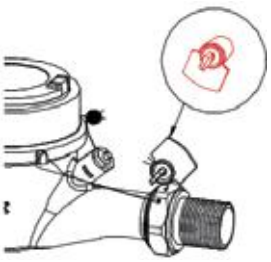
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

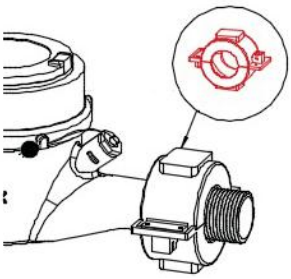
• Anti-Tampering plastic seal for water meter connectors

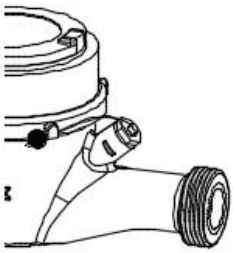
Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.







Stainless Steel Seal

Performance Data	Metrological Data	Nominal Daimeter (DN)	DN	mm	25	32	40	50
			Size	Inch	1″	1¼″	1½″	2″
		Maximum Flow Rate (m³/h)	Q4		≤7.88	≤12.5	≤20.0	≤31.3
		Nominal Flow Rate (m³/h)	Q3		≤6.30	≤10.0	≤16.0	≤25.0
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.126	≤0.200	≤0.320	≤0.500
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.0788	≥0.125	≥0.200	≥0.313
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		≤80 H (Class B)			
		Measuring Transitional Flow Rate	Q2 / Q1		1.6			
		Measuring Maximum Flow Rate	Q4 /Q3		1.25			
		Accuracy Class			2			
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%			
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C			
		Temperature Class	T °C		T30 and T50			
		Water Pressure Classes	MAP (Bar)		16			
		Pressure - Loss Classes	Δ P (Bar)		0,63			
		Max. Indicating Range	[m³]		99 999		999 999	
		Resolution Of The Indicating Device	[litre]		0,05			
		Instalation Positions			H			
		Flow Profile Sensitivity Classes			U0 D0			
		Impulse Value	litre/pulse		100 , 1000			
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR			

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
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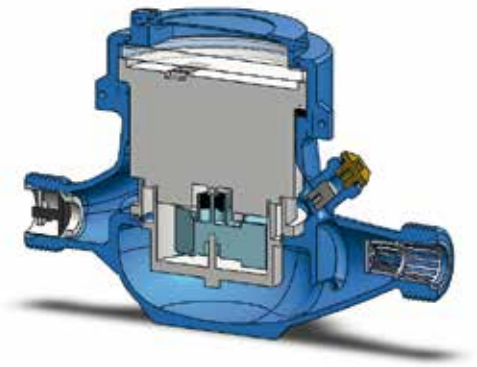


	MATERIAL
1	BODY (PLASTIC)
2	LID AND REGISTER CAP (PLASTIC)
3	GASKET
4	GLASS
5	REGISTER
5.1	ANTIMAGNETIC METAL RING
6	GASKET
7	TURBINE / VANE WHEEL
8	MEASURING CHAMBER
9	ADJUSTING SCREW
10	ADJUSTING PLUG
11	STRAINER
12	NON - RETURN VALVE

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ for DN25 and DN32 (6 digits numeric rolls for m³ for DN40 and DN50) and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of composite polyamide / strong plastic (injection molding). A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of composite polyamide / strong plastic (injection molding)
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

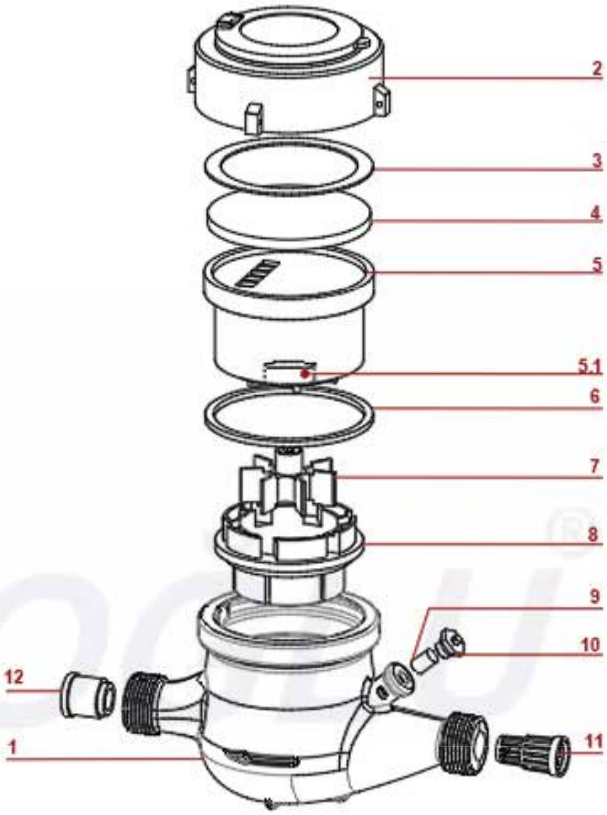
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is made of hard polymer plastic.

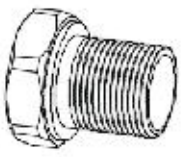
• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of plastic couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.





Connector without hole for sealing

NIL Serie
Single-Jet Dry Dial Water Meter for Cold Water

Main Characteristics:

Approved in accordance with MID
Single-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer
Removable measuring mechanism
Metrological range -horizontal- R100 (Class B)
360° rotating dial
Horizontal installation
Magnetic transmission
Register cap two parts made of plastic + polycarbonate (PC)
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted (optional)
Water temperature up to 50°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

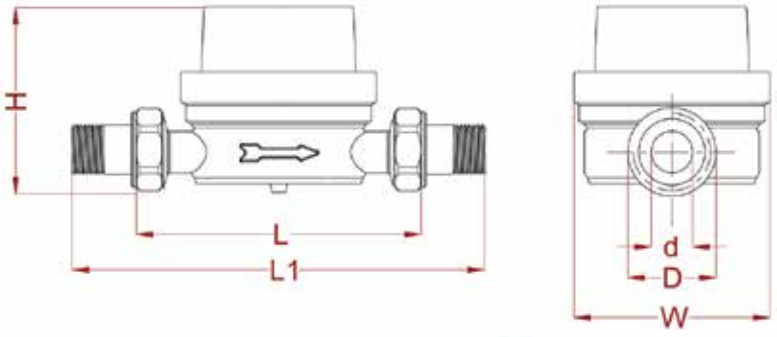
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (TCM - 142 / 14 - 5172)
- The Quality Assurance of Production Process (Module D)
- Sanitary Compliance or Health Certificate (WRAS)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	15	20
		Size	Inch	½"	¾"
	Overall Lenght Without Connectors	L	mm	110	110(')
	Width Approx	L1	mm	177,45	177,45
	Thread Meter GxB	D	Inch	¾"	1"
	Thread Connector	d	Inch	½"	¾"
	Height Approx	H	mm	75,30	75,30
	Height To Pipe Axis	W	mm	72,60	72,60
	Weight Approx	*	kg	0,38	0,40
	Package Without Connectors	*	kg	0,41	0,42
	Package With Connectors	*	kg	0,55	0,55
	Box Dimension (1 unite)	*	cm	12x8,5x8	12x8,5x8
	Package Dimension (30 unite)	*	cm	45x26x27	45x26x27
	Quantity Per Package	*	unite	30	30

(') Also available in length 130 mm
Threading : EN ISO 228-1 : 2003

Marking:

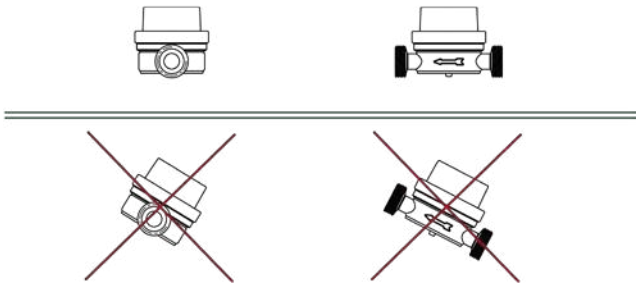
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

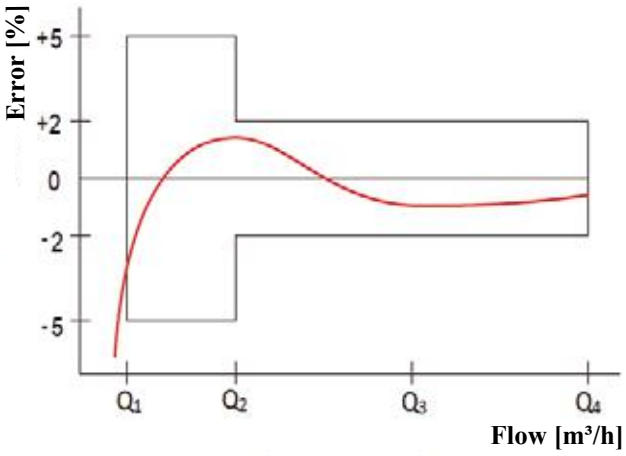


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

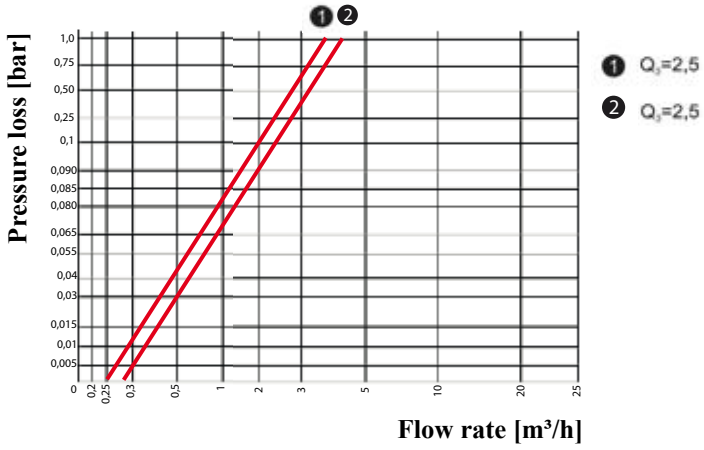
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Nil (P) retrofittable with reed pulser: (Standard: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material.

Typical Accuracy Curve:



Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

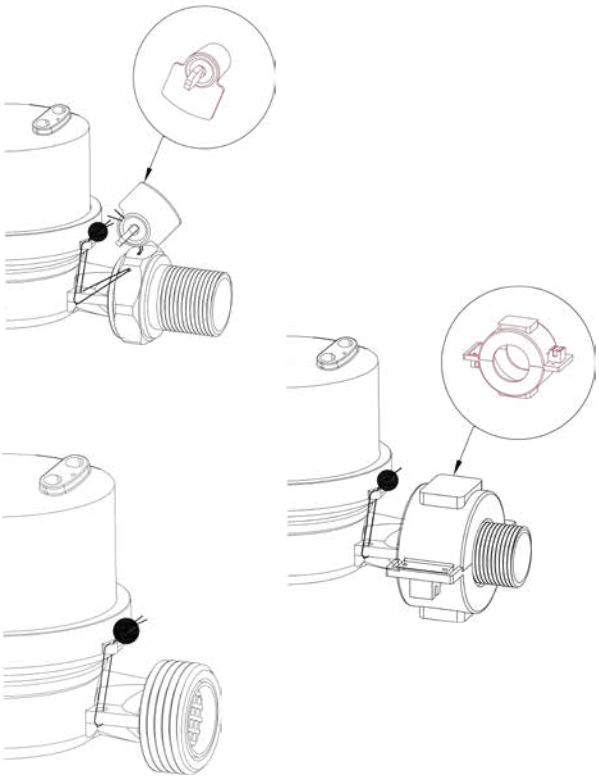
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

• Anti-Tampering plastic seal for water meter connectors

Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.

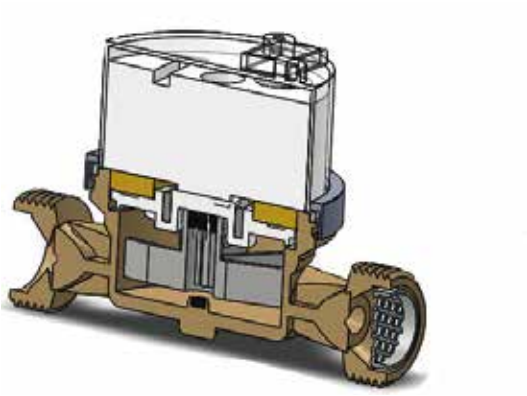


Stainless Steel Seal

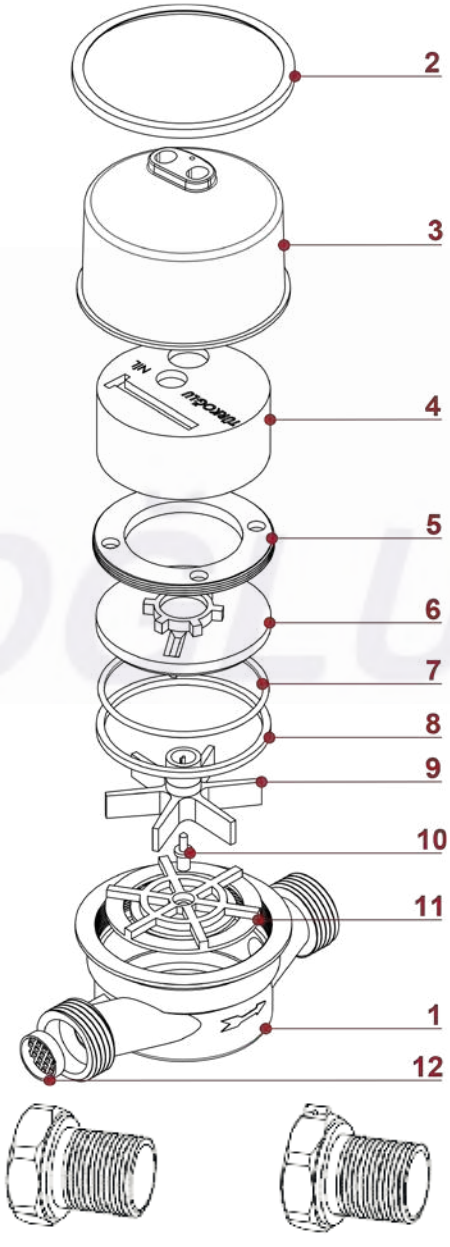
Performance Data	Metrological Data	Nominal Daimeter (DN)	DN	mm	15	20
			Size	Inch	½˝	¾˝
		Maximum Flow Rate (m³/h)	Q4		≤3.125	≤3.125
		Nominal Flow Rate (m³/h)	Q3		≤2.5	≤2.5
		Transitional Flow Rate (m³/h) Tolerance ±2%	Q2		≤0.040	≤0.040
		Minimum Flow Rate (m³/h) Tolerance ±5%	Q1		≥0.025	≥0.025
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		100 H (Class B)	
		Measuring Transitional Flow Rate	Q2 / Q1		1.6	
		Measuring Maximum Flow Rate	Q4 /Q3		1.25	
		Accuracy Class			2	
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%	
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C	
		Temperature Class	T °C		T30 / T50	
		Water Pressure Classes	MAP (Bar)		16	
		Pressure - Loss Classes	Δ P (Bar)		0,63	
		Max. Indicating Range	[m³]		99 999	
		Resolution Of The Indicating Device	[litre]		0,05 or 0,02	
		Instalation Positions			H/V	
		Flow Profile Sensitivity Classes			U0 D0	
		Impulse Value	litre/pulse		1	
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR	

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	MATERIAL
1	BODY (BRASS)
2	REGISTER CLAMP
3	REGISTER RING CAP (PLASTIC)
4	REGISTER
5	SEALING RING (BRASS)
6	SEALING PLATE / PLARTFORM
7	O-RING
8	SEALING GASKET
9	TURBINE / VANE WHEEL WITH SHAPPIRE
10	TURBINE STICK
11	UNDER PLARTFORM
12	STRAINER



Legiblity & Reliability:

- **Register / Counter**

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and three (3) digits (red) and one (1) pointer circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or white) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

- **Meter Body / Housing**

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

- **Register Ring (Cap)**

The register ring (Cap) make of plastic and of polycabone (PC) the material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register.

- **Register Protective Cover Polycarbone (PC)**

The register protective cover is made of sturdy polycarbone to avaid condensation or enable the reading anyway, has a thickness of min. 3 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register made of polycarbone (PC) is 360° rotating dial.

- **Strainer**

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or breaking the seal.

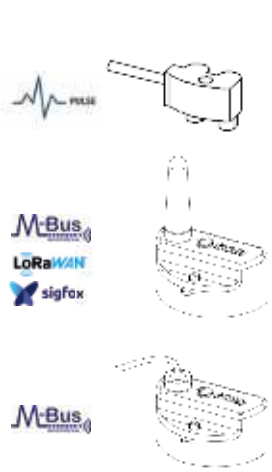
- **Connector For Meter**

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.

(1) Connector without hole for sealing (2) Connector with hole for sealing

OYLAT Serie (DN15, DN20)
Multi-Jet Dry Dial Water Meter for Hot Water

R80 MID | CLASS B ISO



Main Characteristics:

Approved in accordance with MID
Multi-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer and non return valve
Removable measuring mechanism
Metrological range -horizontal- R80 (Class B)
360° rotating lid
Horizontal installation
Magnetic transmission
Register cap made of brass
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
External adjustable screw
Water temperature up to 90°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN

Approvals:

EC type-examination certificate in conformity with

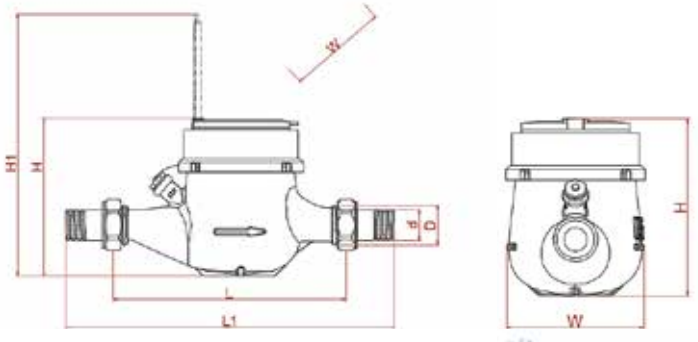
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (RO - 2275- 15287)
- The Quality Assurance of Production Process (Module D)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 90°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	15	20
		Size	Inch	½"	¾"
	Overall Lenght Without Connectors	L	mm	165	190(')
	Overall Lenght With Connectors	L1	mm	230	260
	Thread Meter GxB	D	Inch	¾"	1"
	Thread Connector	d	Inch	½"	¾"
	Total Height	H	mm	107,5	98
	Total Height (With Lid)	H1	mm	191	160
	Width Approx	W	mm	94	85,3
	Weight Approx	*	kg	1,04	1,15
	Package Without Connectors	*	kg	1,08	1,19
	Package With Connectors	*	kg	1,23	1,35
	Box Dimension (1 unite)	*	cm	19x10x9	19x10x9
	Package Dimension (10 unite)	*	cm	49x23x20	49x23x20
	Quantity Per Package	*	unite	10	10

(') Also available in length 165mm
Threading : EN ISO 228-1 : 2003

Marking:

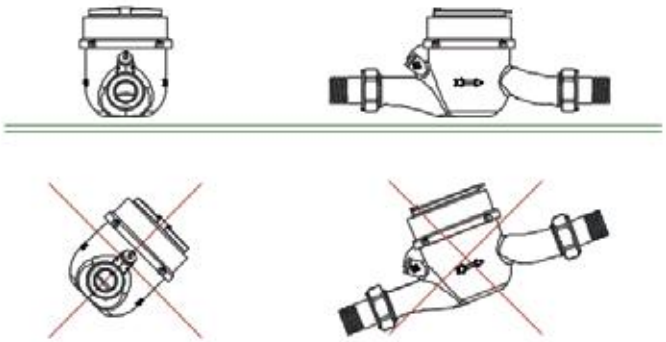
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

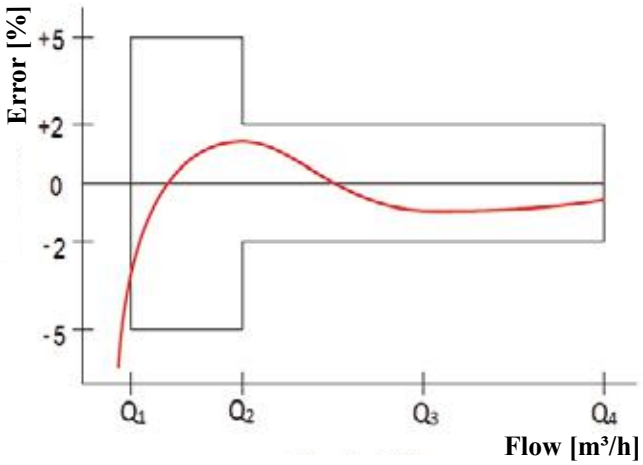


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

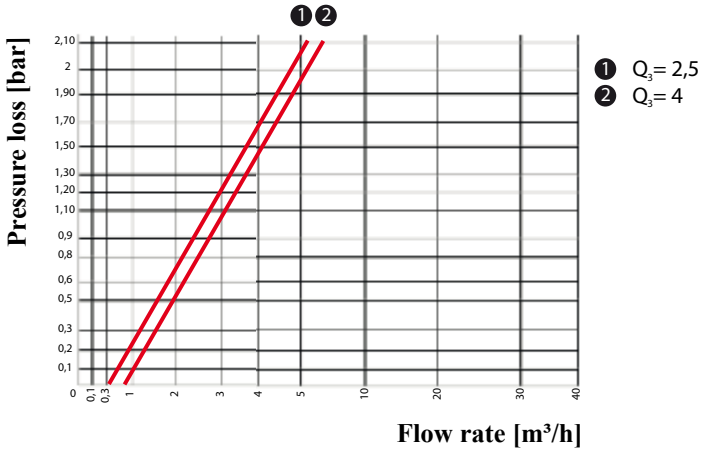
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Oylat (P) retrofittable with reed pulser: 1/10/100/1000 (Standard: 10 l/pulse, optional: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

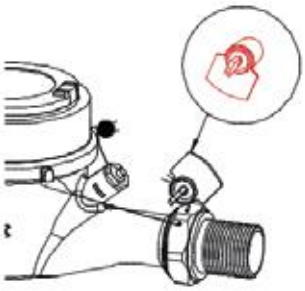
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

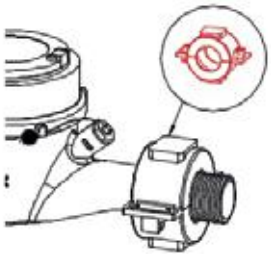
• Anti-Tampering plastic seal for water meter connectors

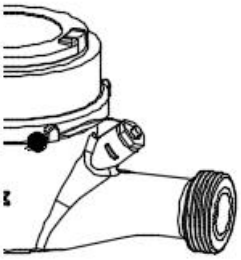
Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 and not easily deform and it can not opened without breaking. There are holes on the lock mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harr substances to human health and environment.

• Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickne optional (covered with plastic) and aluminium seal.





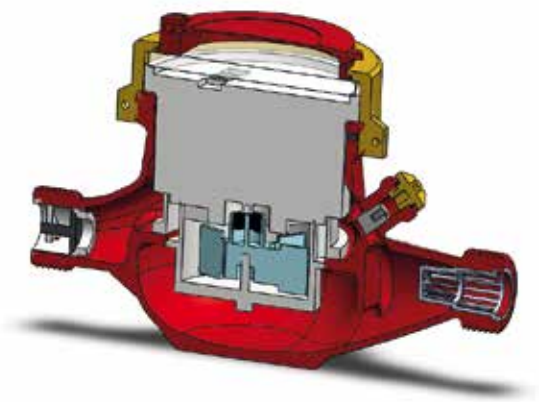


Stainless Steel Seal

Performance Data	Metrological Data	**Nominal Daimeter (DN)**	**DN**	**mm**	**15**	**20**
			Size	**Inch**	**½˝**	**¾˝**
		Maximum Flow Rate (m³/h)	Q4		≤3.13	≤5.00
		Nominal Flow Rate (m³/h)	Q3		≤2.50	≤4.00
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.050	≤0.050
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.0313	≥0.0313
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		≤80 H (Class B)	
		Measuring Transitional Flow Rate	Q2 / Q1		1.6	
		Measuring Maximum Flow Rate	Q4 /Q3		1.25	
		Accuracy Class			2	
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%	
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C	
		Temperature Class	T °C		T90	
		Water Pressure Classes	MAP (Bar)		16	
		Pressure - Loss Classes	Δ P (Bar)		0,63	
		Max. Indicating Range	[m³]		99 999	
		Resolution Of The Indicating Device	[litre]		0,05	
		Instalation Positions			H	
		Flow Profile Sensitivity Classes			U0 D0	
		Impulse Value	litre/pulse		1 , 10 , 100 , 1000	
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR	

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	MATERIAL
1	BODY (BRASS)
2	LID
3	REGISTER CAP (BRASS)
4	GASKET
5	GLASS
6	REGISTER
6.1	ANTIMAGNETIC METAL RING
7	GASKET
8	TURBINE / VANE WHEEL
9	MEASURING CHAMBER
10	ADJUSTING SCREW
11	ADJUSTING PLUG
12	STRAINER
13	NON - RETURN VALVE

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission. It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of press brass alloy containing not less than 58% copper.
The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

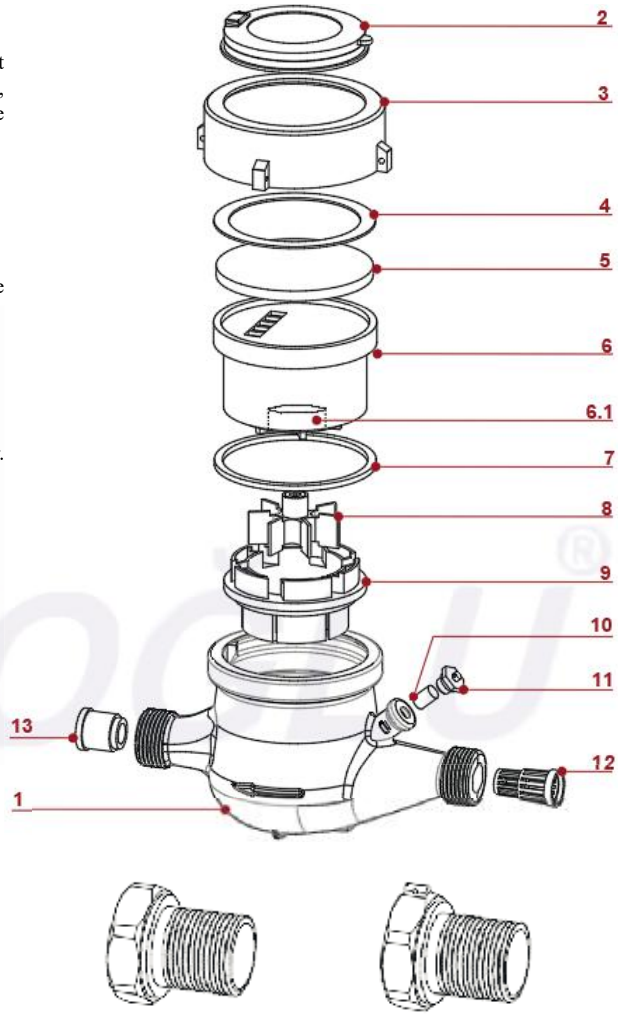
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is 360° rotating and made of hard polymer.

• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

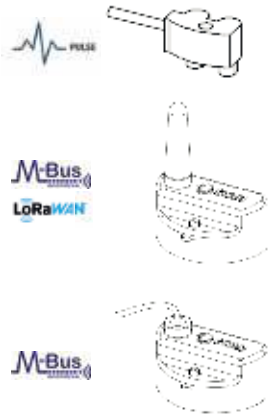
• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.



(1) Connector without hole for sealing (2) Connector with hole for sealing

OYLAT Serie (DN25, DN32, DN40, DN50)
Multi-Jet Dry Dial Water Meter for Hot Water



Main Characteristics:

Approved in accordance with MID
Multi-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer and non return valve
Removable measuring mechanism
Metrological range -horizontal- R80 (Class B)
360° rotating lid
Horizontal installation
Magnetic transmission
Register cap made of brass
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
External adjustable screw
Water temperature up to 90°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN

Approvals:

EC type-examination certificate in conformity with

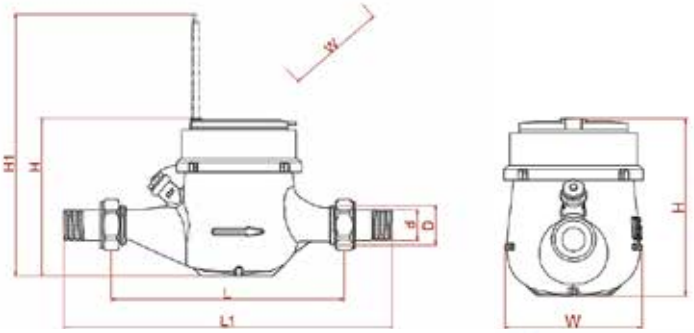
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (RO - 2275- 15287)
- The Quality Assurance of Production Process (Module D)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 90°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



	Nominal Daimeter	Dn	mm	Dn25	Dn32	Dn40	Dn50
		Size	Inch	1"	1¼"	1½"	2"
Dimension / Weight	Overall Lenght Without Connectors	L	mm	260	260	300	300
	Overall Lenght With Connectors	L1	mm	346,5	353,3	431	448
	Thread Meter GxB	D	Inch	1¼"	1½"	2"	2½"
	Thread Connector	d	Inch	1"	1¼"	1½"	2"
	Total Height	H	mm	111	110	141,5	177
	Total Height (With Lid)	H1	mm	175	173	256,5	292
	Width Approx	W	mm	90	90	145	145
	Weight Approx	*	kg	2,05	2,03	4,30	4,65
	Package Without Connectors	*	kg	2,15	2,14	4,45	4,80
	Package With Connectors	*	kg	2,50	2,54	5,05	5,76
	Box Dimension (1 unite)	*	cm	27x14x11		31x17x14	
	Package Dimension (10 unite)	*	cm	57x28x15		44x33x20	
	Quantity Per Package	*	unite	5		3	

Threading : EN ISO 228-1 : 2003

Marking:

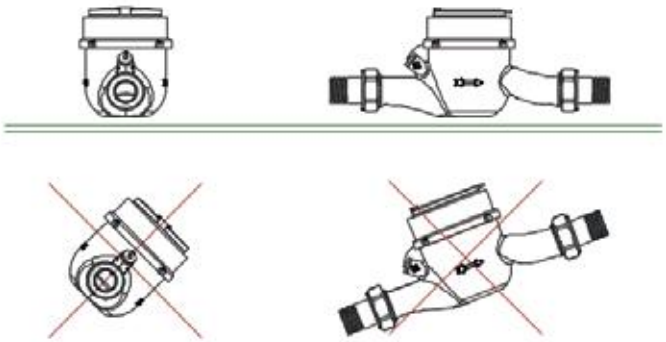
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

Optional customized meter marking purchaser's logo or tender number, or QR code, serial number.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

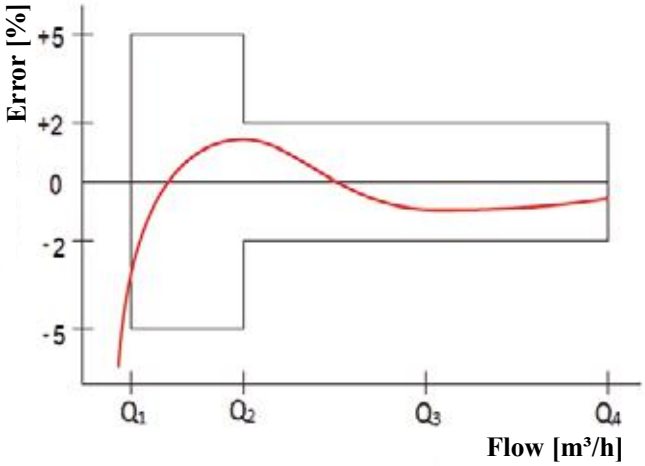


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

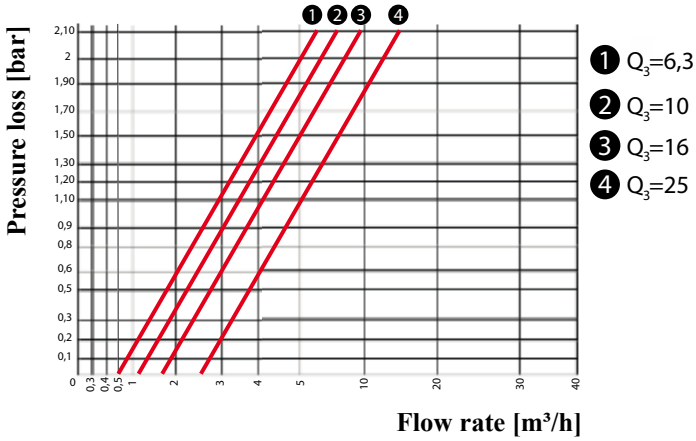
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Oylat (P) retrofittable with reed pulser: 100/1000 (Standard: 100 l/pulse, optional: 1000 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

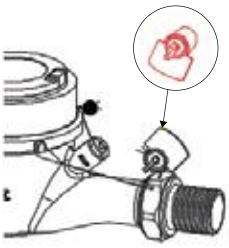
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

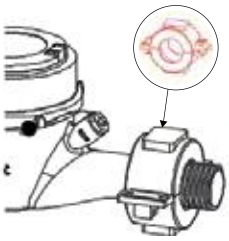
• Anti-Tampering plastic seal for water meter connectors

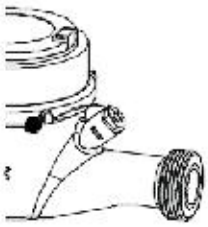
Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.





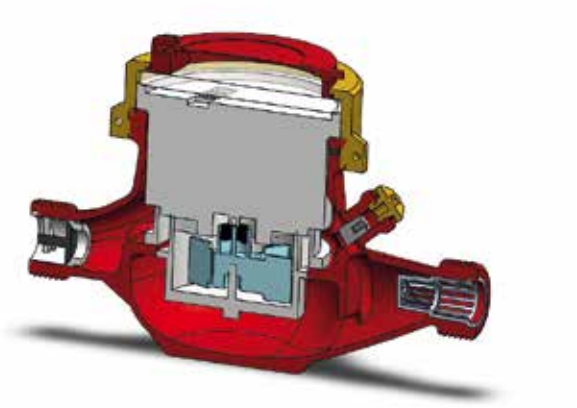


Stainless Steel Seal

Performance Data	Metrological Data	Nominal Daimeter (DN)	DN	mm	25	32	40	50
			Size	Inch	1˝	1˝¼	1˝½	2˝
		Maximum Flow Rate (m³/h)	Q4		≤7.88	≤12.5	≤20.0	≤31.3
		Nominal Flow Rate (m³/h)	Q3		≤6.30	≤10.0	≤16.0	≤25.0
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.126	≤0.200	≤0.320	≤0.500
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.0788	≥0.125	≥0.200	≥0.313
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		≤80 H (Class B)			
		Measuring Transitional Flow Rate	Q2 / Q1		1.6			
		Measuring Maximum Flow Rate	Q4 /Q3		1.25			
		Accuracy Class			2			
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%			
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEU)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C			
		Temperature Class	T °C		T90			
		Water Pressure Classes	MAP (Bar)		16			
		Pressure - Loss Classes	Δ P (Bar)		0,63			
		Max. Indicating Range	[m³]		99 999		999 999	
		Resolution Of The Indicating Device	[litre]		0,05			
		Instalation Positions			H			
		Flow Profile Sensitivity Classes			U0 D0			
		Impulse Value	litre/pulse		100 , 1000			
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR			

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	MATERIAL
1	BODY (BRASS)
2	LID
3	REGISTER CAP (BRASS)
4	GASKET
5	GLASS
6	REGISTER
6.1	ANTIMAGNETIC METAL RING
7	GASKET
8	TURBINE / VANE WHEEL
9	MEASURING CHAMBER
10	ADJUSTING SCREW
11	ADJUSTING PLUG
12	STRAINER
13	NON - RETURN VALVE

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ for DN25 and DN32 (6 digits numeric rolls for m³ for DN40 and DN50) and four (4) pointers circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Register Ring (Cap) make of press brass alloy containing not less than 58% copper.
The material can be accessible or removable in order to maintain the internal parts of the meter.
Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

• Register Protective Cover (Glass) and Register Cover (Lid)

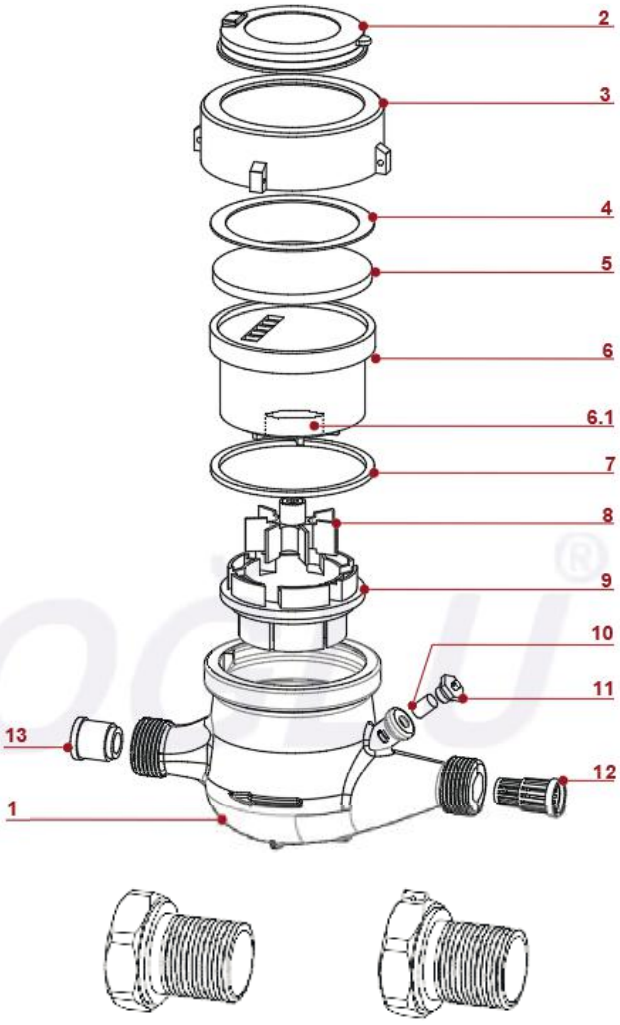
The register protective cover is made of sturdy mineral glass to avaid condensation or enable the reading anyway, has a thickness of min. 5 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register mineral glass (lid) is 360° rotating and made of hard polymer.

• Strainer and Non-Return Valve

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable tubular, durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or braking the seal. Durable internal non-return valve is integrated at meter body/housing at outlet-side.

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.



(1) Connector without hole for sealing (2) Connector with hole for sealing

NIL Serie
Single-Jet Dry Dial Water Meter for Hot Water

R80 MID | CLASS B ISO

Main Characteristics:

Approved in accordance with MID
Single-Jet dry dial register type with vane-wheel
Brass housing material
Durable internal removable strainer
Removable measuring mechanism
Metrological range -horizontal- R80 (Class B)
360° rotating dial
Horizontal installation
Magnetic transmission
Register cap two parts made of plastic + polycarbonate (PC)
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted (optional)
Water temperature up to 90°C
(QR) Code to send data for viewing - optional
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

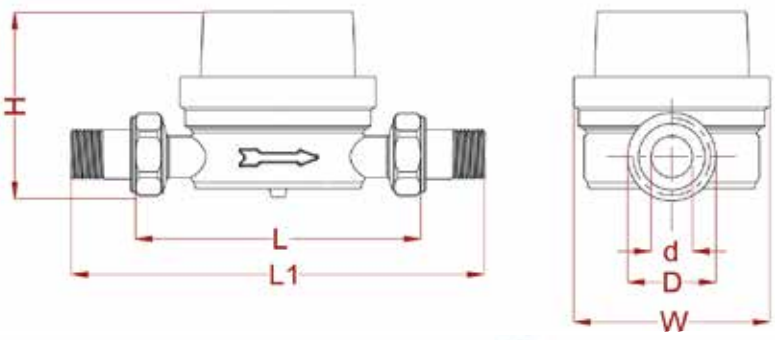
- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

- EC Type Examination Certificate (TCM - 142 / 14 - 5172)
- The Quality Assurance of Production Process (Module D)
- Sanitary Compliance or Health Certificate (WRAS)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 90°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins., 32 bar for 1 mins. Its reliability, resistance to bad water quality and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions.



Dimension / Weight	Nominal Daimeter	Dn	mm	15	20
		Size	Inch	½"	¾"
	Overall Lenght Without Connectors	L	mm	110	110(')
	Width Approx	L1	mm	64,3	64,6
	Thread Meter GxB	D	Inch	¾"	1"
	Thread Connector	d	Inch	½"	¾"
	Height Approx	H	mm	61,3	61,3
	Height To Pipe Axis	W	mm	13	16,5
	Weight Approx	*	kg	0,35	0,38
	Package Without Connectors	*	kg	0,38	0,41
	Package With Connectors	*	kg	0,53	0,56
	Box Dimension (1 unite)	*	cm	12x8,5x8	12x8,5x8
	Package Dimension (30 unite)	*	cm	45x26x27	45x26x27
	Quantity Per Package	*	unite	30	30

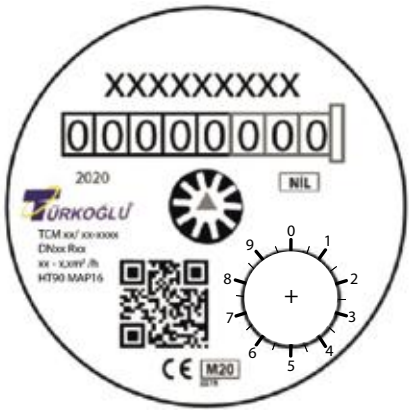
(') Also available in length 130 mm
Threading : EN ISO 228-1 : 2003

Marking:

The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

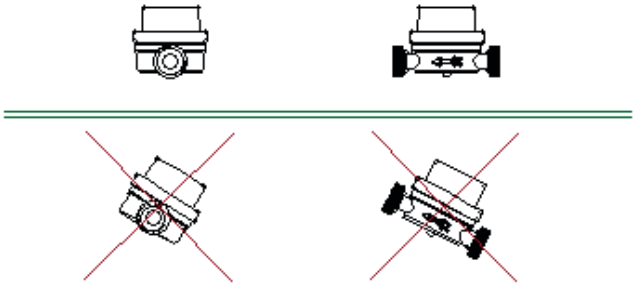
Optional customized meter marking purchaser's logo or tender number, or QR code.

Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.



Installation and Operating Instruction:

Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or ball valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or ball valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

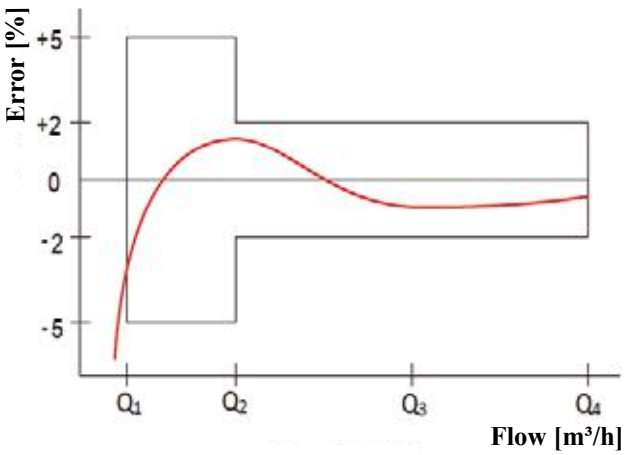


Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

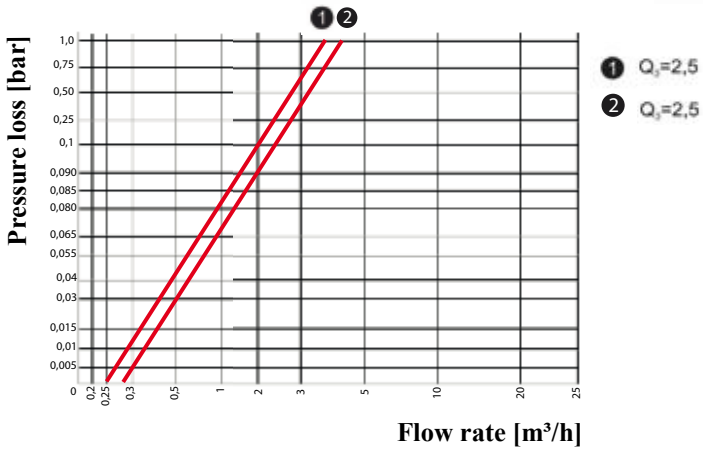
Water meters could be equipped with a pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Nil (P) retrofittable with reed pulser: (Standard: 1 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.

Typical Accuracy Curve:



Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

Typical Head Loss Curve:



Tampering Protection and Sealing (Optional):

• Anti-Tampering butterfly seal for water meter

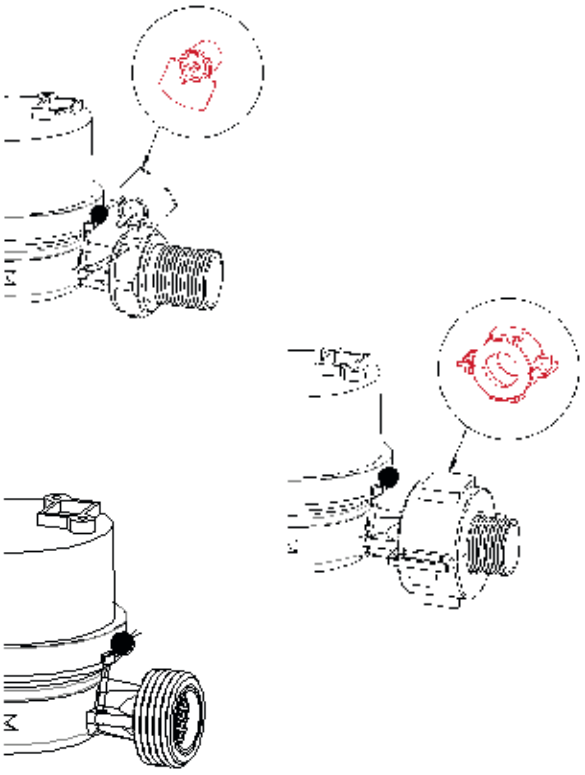
Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.

• Anti-Tampering plastic seal for water meter connectors

Plastic seal consists of two equal parts. They are made of polycarbonate (PC) material which has non-flammable, chemicals, salts, weather and ultra-violet resistant. Thickness is min.2,00 mm and not easily deform and it can not opened without breaking. There are holes on the locking mechanism suitable for the passage of the sealing wire after locking.
The materials to be used of both seals are recyclable, and the contents are not contain harmful substances to human health and environment.

• Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.

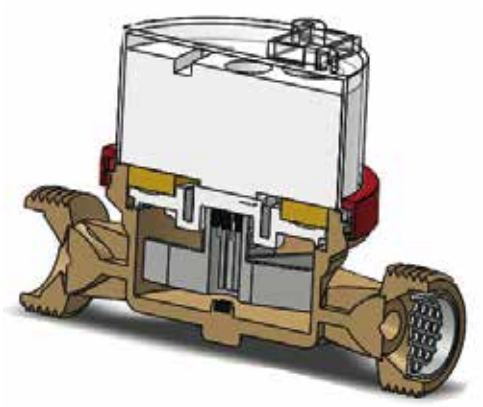


Stainless Steel Seal

		Nominal Daimeter (DN)	DN / Size	mm / Inch	15	20
					½″	¾″
Performance Data	Metrological Data	Maximum Flow Rate (m³/h)	Q4		≤3.125	≤3.125
		Nominal Flow Rate (m³/h)	Q3		≤2.5	≤2.5
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≤0.0501	≤0.0501
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.0313	≥0.0313
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		≤80 H (Class B)	
		Measuring Transitional Flow Rate	Q2 / Q1		1.6	
		Measuring Maximum Flow Rate	Q4 /Q3		1.25	
		Accuracy Class			2	
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%	
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEu)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C	
		Temperature Class	T °C		T90	
		Water Pressure Classes	MAP (Bar)		16	
		Pressure - Loss Classes	Δ P (Bar)		0,63	
		Max. Indicating Range	[m³]		99 999	
		Resolution Of The Indicating Device	[litre]		0,05 or 0,02	
		Instalation Positions			H/V	
		Flow Profile Sensitivity Classes			U0 D0	
		Impulse Value	litre/pulse		1	
		ModuleType (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR	

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	METERIAL
1	BODY (BRASS)
2	REGISTER RING CAP (PLASTIC)
3	REGISTER TRANSPARENT COVER (PC)
4	REGISTER
5	SEALING RING (BRASS)
6	ANTIMAGNETIC METAL RING
7	SEALING PLATE / PLARTFORM
8	SEALING GASKET
9	TURBINE / VANE WHEEL WITH SHAPPIRE
10	STRAINER

Legiblity & Reliability:

• Register / Counter

The register is direct straight reading type and consists of five (5) digits numeric rolls for m³ and three (3) digits (red) and one (1) pointer circular for litres to ensure perfect readability. The lowest resolution is 0,05 litres. The dial has a central disc (black or white) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

• Meter Body / Housing

The body/housing of the water meter, threaded type, make of brass alloy (press or cast) containing not less than 58% copper- corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

• Register Ring (Cap)

Plastic and the material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register.

• Register Protective Cover and Polycarbone (PC)

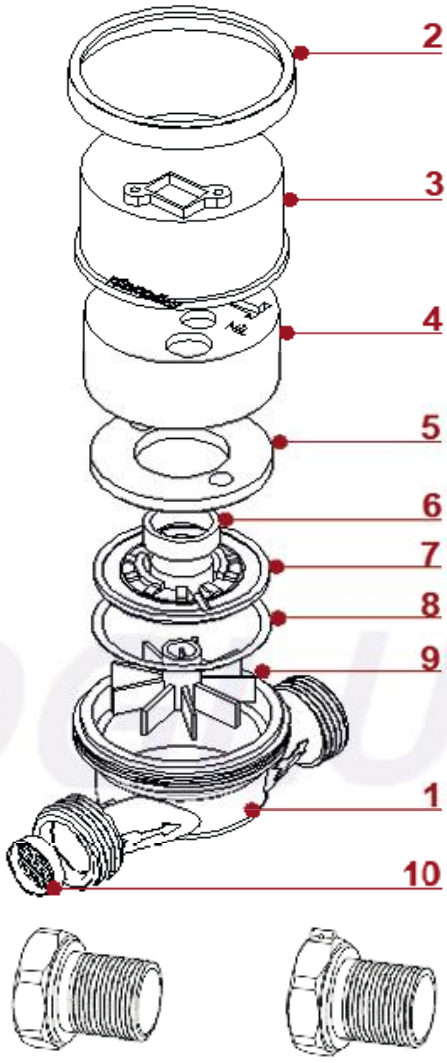
The register protective cover is made of sturdy polycarbone to avaid condensation or enable the reading anyway, has a thickness of min. 3 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register made of polycarbone (PC) is 360° rotating dial.

• Strainer

Larger particles (dust,stone, etc.) in water can be filtered by a cleanable durable internal removable strainer at the flow inlet to the meter, without dismantling the meter and/or breaking the seal.

• Connector For Meter

Set of connectors for water meter comes with a set of klinger-seal or EPDM rubber gaskets and one set of brass couplings (tailpieces, nut) threaded to correct male size that are resistant to corrosion. The thread conform to ISO 228-1 standard.
Optional: (2) Coupling nut on tailpiece can be drilled for sealing wires.



(1) Connector without hole for sealing (2) Connector with hole for sealing

CML Serie
Bulk Water Meter - Woltman Type
Dry Dial Flanged Water Meter for Cold Water

R100 MID

CLASS B ISO

Main Characteristics:

Approved in accordance with MID
Dry dial register type with turbine (horizontal helix)
GGG 40.3 Ductile iron materials body
Interchangeable measuring mechanism
Metrological range R100 (Class B)
Horizontal or vertical installation
High sensitivity at starting flow rate
Magnetic transmission
Register cap made of steel or plastic with lid
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
Water temperature up to 50°C
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

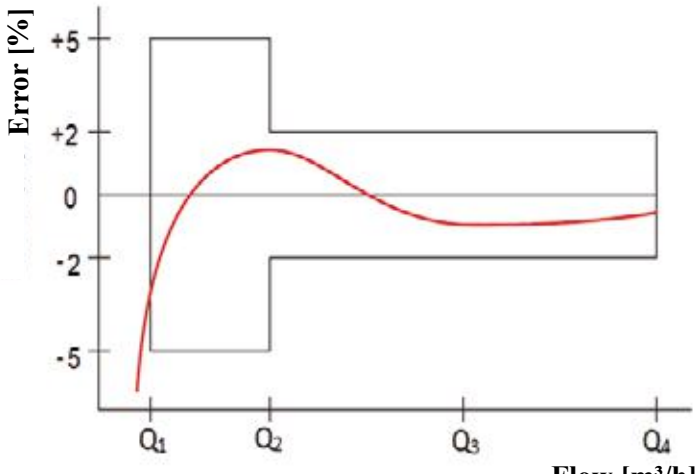
- EC Type Examination Certificate (Module B)
- The Quality Assurance of Production Process (Module D)

- ISO 9001:2015
- ISO 45001:2018
- ISO 14001:2015
- ISO 27001:2013

Applications:

Use for industry and irrigation purpose.
For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins. 32 bar for 1 mins. Its reliability, resistance to bad water quality heavily contaminated water e.g in agriculture, in sewage threatment plants or wastewater systems and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions. Note that, where is very heavy contamination, external filters can be inserted upstream of the water meter.

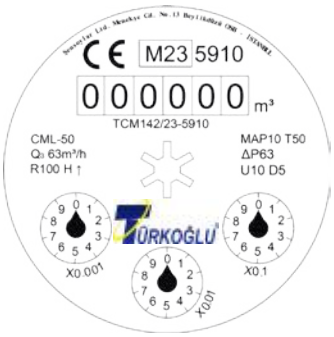
Typical Accuracy Curve:



Q_1 = Minimum Flowrate
Q_2 = Transitional Flowrate
Q_3 = Permanent Flowrate
Q_4 = Overload Flowrate

Marking:

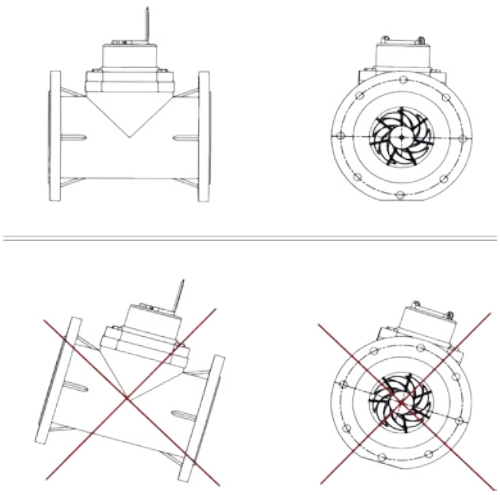
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.



Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.

Installation and Operating Instruction:

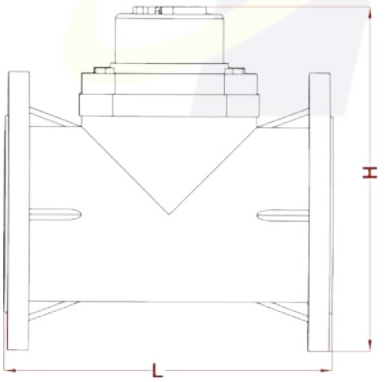
Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or gate valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or gate valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

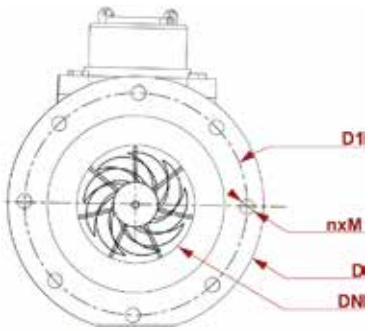


Reed Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

Water meters could be equipped with a reed pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, CML (P) retrofittable with reed pulser:10/100/1000 (Standard: 1000 1/pulse, optional: 100 1/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.





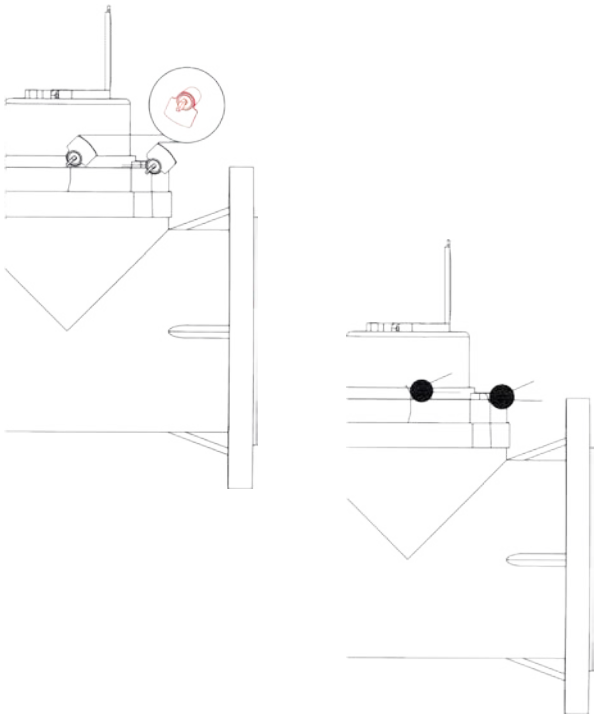
Dimension / Weight	Nominal Daimeter	Dn	mm	50	65	80	100	125	150	200
		Size	Inch	2″	2″ ½	3″	4″	5″	6″	8″
	Overall Lenght	L	mm	200	200	225	250	250	300	350
	Total Height	H	mm	250	208	245	245	275	350	370
	Outer Diameter	D	mm	160	180	195	215	245	285	340
	Flange Diameter	D1	mm	125	145	160	180	210	240	295
	Inner Diameter	DN	mm	50	65	80	100	125	150	200
	Diameter Gear	nxM		4xM16		8xM16			8xM20	12xM20
	Weight Approx	*	kg	8,00	9,50	14,50	16,80	20,00	36,00	44,50
	Package Dimension	*	cm	28x18x23	28x20x22	28x20x22	30x23x26,5	31,5x26x27,5	34x30x32,5	39,5x38,5x45,5
	Quantity Per Package	*	unite	1						

Flange ISO 7005 - 2 / EN 1092 - PN16

Tampering Protection and Sealing (Optional):

•Anti-Tampering butterfly seal for water meter

Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.



Stainless Steel Seal

•Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.

Performance Data	Metrological Data	Nominal Daimeter (DN)	DN	mm	50	65	80	100	125	150	200
			Size	Inch	2″	2″ ½	3″	4″	5″	6″	8″
		Maximum Flow Rate (m³/h)	Q4		≤50	≤78.75	≤125	≤200	≤200	≤500	≤787.5
		Nominal Flow Rate (m³/h)	Q3		≤40	≤63	≤100	≤160	≤160	≤400	≤630
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≥0.64	≥1.008	≥1.6	≥2.56	≥2.56	≥16.4	≥10.08
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥0.4	≥0.64	≥1.0	≥1.6	≥1.6	≥4	≥6.3
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		100						
		Measuring Transitional Flow Rate	Q2 / Q1		1.6						
		Measuring Maximum Flow Rate	Q4 /Q3		1.25						
		Accuracy Class			2						
	Technical Data	Maximum Permissible Error For The Lower Flow Rate Zone	(MPE1)		±5%						
		Maximum Permissible Error For The Upper Flow Rate Zone	(MPEU)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C						
		Temperature Class	T °C		T30 and T50						
		Water Pressure Classes	MAP (Bar)		16						
		Pressure - Loss Classes	Δ P (Bar)		ΔP63						
		Max. Indicating Range	[m³]		999 999						
		Resolution Of The Indicating Device	[litre]		0,001					0,01	
		Instalation Positions			H						
		Connection Type			Flange Connection						
		Reed Switch Power Supply	Umax/Imax		Max. 24V / 0,01A						
		Impulse Value	litre/pulse		100 and 1000						
		Module Type (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR						

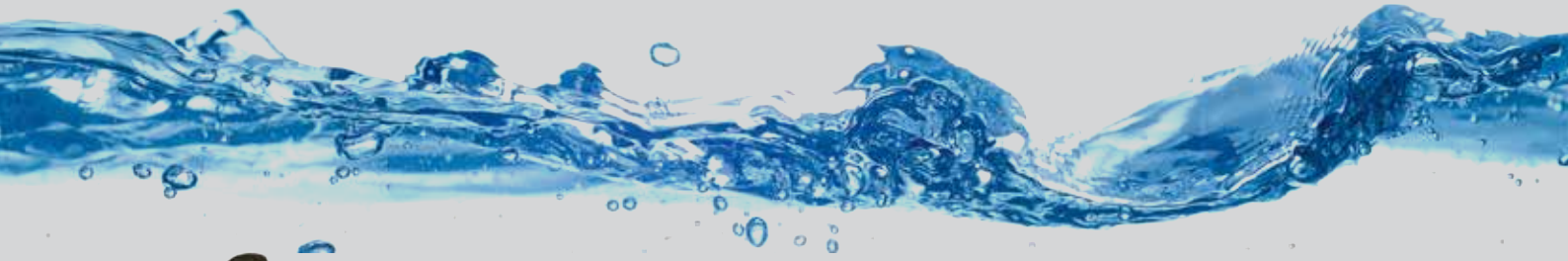
Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.

TÜRKOĞLU®
VALVES AND ARMATURE

twm®
TURKOGLU WATER METER

QUALITY IN THE INDUSTRY, TRUST AND STABILITY ADDRESS



ŞENSOYLAR GROUP | TÜRKOĞLU VALVES AND ARMATURE | TURCFLEX FLEXIBLE METAL HOSES | twm | TİEM | STRAWPANEL | nature

YIGIT Serie
Irrigation & Agriculture Woltman Type
Single - Jet Dry Dial Water Meter for Cold Water

R25 MID

CLASS A ISO

Main Characteristics:

Approved in accordance with MID
Single - Jet dry dial register type with vane-wheel
GGG - 40.3 Ductile Iron Materials body
Removable measuring mechanism
Metrological range -horizontal- R20 - 25 (Class A)
Horizontal installation
Magnetic transmission
Register cap made of steel or plastic
High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading
Electrostatic e/p powder painted
Water temperature up to 50°C
Equipable with Pulse output, MBus (Wire, Wireless),RF
Spare parts and service available for 10 years
2 years of guarantee

Available options:

The meter could be pre-equipped for future integration of remote reading devices such as MBus wire, MBus wireless OMS, Non-magnetic pulse output, AMR and upon request LoRa, LoRaWAN, Sigfox

Approvals:

EC type-examination certificate in conformity with

- 2014/32/EU (MID) MI-001 Water Meter
- OIML R49-1 :2006
- EN 14154:2005+A2
- ISO 4064:2015

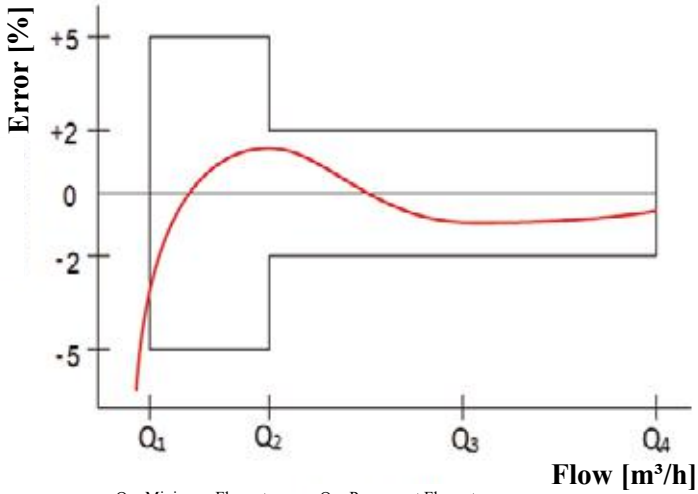
- EC Type Examination Certificate (TCM - 142 / 14 - 5157)
- The Quality Assurance of Production Process (Module D)

- ISO 9001:2015
- ISO 14001:2015
- ISO 45001:2018
- ISO 27001:2013

Applications:

For the consumption measuring of cold potable water up to 50°C. Working pressure 16 bar (PN16), min. static pressure test 25 bar for 15 mins. 32 bar for 1 mins. Its reliability, resistance to bad water quality heavily contaminated water e.g in agriculture, in sewage threatment plants or wastewater systems and noiseless operation will satisfy both end users and network managers. Meter also keeps its metrological accurancy for many years of operation, even in very difficult working conditions. Note that, where is very heavy contamination, external filters can be inserted upstream of the water meter.

Typical Accuracy Curve:

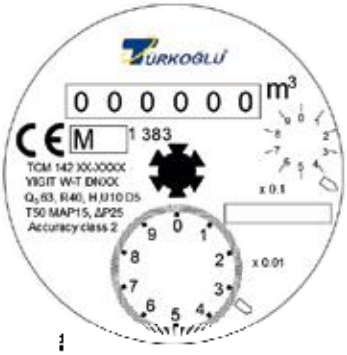


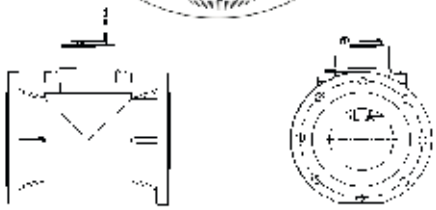
Q_1 = Minimum Flowrate
Q_2 = Transitional Flowrate
Q_3 = Permanent Flowrate
Q_4 = Overload Flowrate

Marking:

The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (T), CE marking, Metrology marking, Notified body number from D and F module, Volume unite of the index (m3) according to the MID 2014/32/EU directive on measuring instruments are printed on the dial.

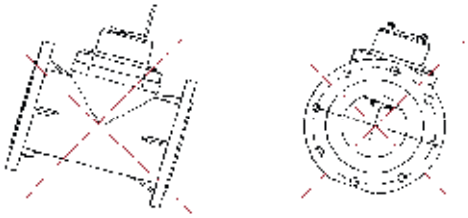
Markings which are clearly visible, readable and of permanent and non-deleteable nature may vary depending on particular markets or metrological specifications.





Installation and Operating Instruction:

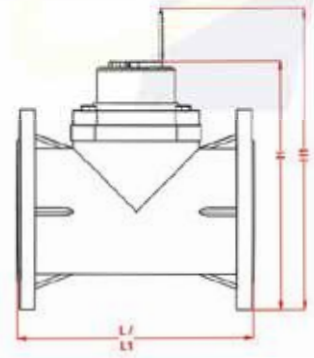
Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or gate valve is recommended to allow installation and removal of the water meter. When connecting the meter with the meter network, the upstream stop valve or gate valve must be opened slowly so that the meter fills the meter as smoothly as possible. No special maintenance is required.

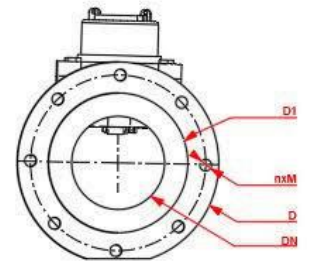


Reed Pulse Emitter Device:

Water meter could be equipped with pulse emitter device which is a removable bonnet for quick and easy maintance without damaging or removing the metrological seals of the meter. The meter can be linked to tele-reading systems, to PLC, to M-Bus networks using singal converter, to pulse counter and all those applications that require remote reading of the water consumption data.

Water meters could be equipped with a reed pulse emitter with protection class (IP68) 1,20 meter length of pre-mounted wire cables, Yigit (P) retrofittable with reed pulser:100/1000 (Standard: 1000 l/pulse, optional: 100 l/pulse) or pre-equipped for the future installation of the pulse emitter. Note: The register protective cover of water meter with pulse emitter device will be high-quality UV-resistant and made of polycarbonate (PC) transparent material instead of mineral glass.





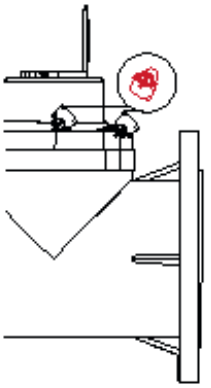
Dimension / Weight	Nominal Daimeter											
		Dn	mm	50	65	80	100	125	150	200	250	300
		Size	Inch	2″	2″ ½	3″	4″	5″	6″	8″	10″	12″
	Overall Lenght	L	mm	200	200	224	250	250	300	348,5	500	500
	Overall Lenght (With Wasket)	L1	mm	205	205	229	255	255	305	353,5	505	505
	Total Height	H	mm	250	260	277	285	320	330	390	460	460
	Total Height (With Lid)	H1	mm	340	290	314	375	388	368	485	568	550
	Outer Diameter	D	mm	50	65	80	100	125	150	200	250	300
	Flange Diameter	D1	mm	100	122	136,5	160	180	210	266,3	319,5	367
	Inner Diameter	DN	mm	164	183	198,5	217	250	284	340	405	460
	Diameter Gear	nxM		4xM16		8xM16			8xM20	12xM20	12XM24	
	Weight Approx	*	kg	10,5	11,8	15,5	17,5	19,5	30,5	39	55	82,5
	Package Dimension	*	cm	28x18x23	28x20x22	28x20x22	30x23x26,5	31,5x26x27,5	34x30x32,5	39,5x38,5x45,5	51x47x51,5	51x47x51,5
	Quantity Per Package	*	unite	1								

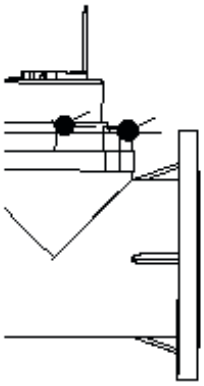
Flange ISO 7005 - 2 / EN 1092 - PN16

Tampering Protection and Sealing (Optional):

•Anti-Tampering butterfly seal for water meter

Pented butterfly seal consists mainly of three parts: transparent body, colored butterfly inner part and stainless steel sealing wire. Transparent body is made of polycarbonate (PC) material, colorful butterfly inner part is made of polyoximethylene (POM) which can not be removed without breaking from mounted inside. The inner part mounted inside the cylindrical body shall be non-reversible and unidirectional. Sealing wire made of AISI304 stainless steel are produced by twisting 7 pieces of Ø 0.23mm wire on top of each other. The butterfly seal can be used once aganist tempering in water meters. Optional: Laser printed serial number and company logo could be added on the body based on quantity.





Stainless Steel Seal

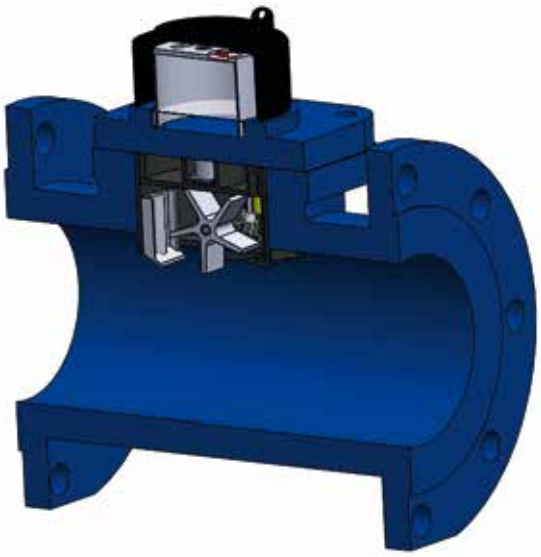
•Meter Seals

The meter is sealed by sealing materials which are stainless steel wire 1.00 mm thickness - optional (covered with plastic) and aluminium seal.

		Nominal Daimeter (DN)	DN / Size	mm / Inch	50 / 2″	65 / 2″ ½	80 / 3″	100 / 4″	125 / 5″	150 / 6″	200 / 8″	250 / 10″	300 / 12″
Performance Data	Metrological Data	Maximum Flow Rate (m^3/h)	Q4		≤78.8	≤78.8	≤125	≤200	≤313	≤500	≤788	≤1250	≤2000
		Nominal Flow Rate (m^3/h)	Q3		≤63	≤63	≤100	≤160	≤250	≤400	≤630	≤1000	≤1600
		Transitional Flow Rate (l/h) Tolerance ±2%	Q2		≥2.52	≥2.52	≥4.0	≥6.4	≥10	≥16.0	≥25.2	≥40.0	≥64.0
		Minimum Flow Rate (l/h) Tolerance ±5%	Q1		≥1.57	≥1.57	≥2.5	≥4.0	≥6.25	≥10.0	≥15.7	≥25.0	≥40.0
		Measuring Range - Horizantal (R-Class)	Q3 / Q1		≤40								
		Measuring Transitional Flow Rate	Q2 / Q1		1.6								
		Measuring Maximum Flow Rate	Q4 /Q3		1.25								
		Accuracy Class			2								
	Technical Data	Maximum Permissible Error Fort The Lower Flow Rate Zone	(MPE1)		±5%								
		Maximum Permissible Error Fort The Upper Flow Rate Zone	(MPEU)		±2 % for water having a temperature ≤30 °C ±3 % for water having a temperature >30 °C								
		Temperature Class	T °C		T30 and T50								
		Water Pressure Classes	MAP (Bar)		16								
		Pressure - Loss Classes	Δ P (Bar)		25	10							
		Max. Indicating Range	[m^3]		999 999					9 999 999			
		Resolution Of The Indicating Device	[litre]		0,001					0,01			
		Instalation Positions			H								
		Connection Type			Flange Connection								
		Reed Switch Power Supply	Umax/Imax		Max. 24V / 0,01A								
		Impulse Value	litre/pulse		100 and 1000								
		Module Type (Optional)			Pulse, MBus (Wired,Wireless), RF, AMR								

Third Party Inspection Company (Optional)

Third Party Inspection company (Bureau Veritas, SGS, Intertek) can be attended and witness to the needed tests in order to ensure 100% complete matching between the product and what is required in tender or contract documents in terms of standards, specifications and conditions.
Third Party Inspection report could be provided to the purchaser with results of all tests performed including visual, quality, quantity, packing, marking, loading control and witnessing to hydrostatic tests, error of indication tests during the inspection before each shipment.



	MATERIAL
1	CAST IRON BODY
2	LID AND REGISTER CAP
3	REGISTER
4	GLASS
5	SCREW
6	SEPARATION PLATE
6.1	ADJUSTING SHAFT
7	ANTIMAGNETIC TRANSMISSION
8	O-RING
9	UPPER INSERT
10	ADJUSTING DEVICE
11	TURBINE GEAR / PIVOT
12	TURBINE
13	LOWER INSERT

Legiblity & Reliability:

- **Register / Counter**

The register is direct straight reading type and consists of seven (7) digits numeric rolls for m³ and one (1) pointers circular for litres to ensure perfect readability. The lowest resolution is 1.00 litre. The dial has a central disc (black or red) whose rotation indicates the passage of water. This indicator can be used to reveal a downstream leak. The register is also suitable for test on an electronic test bench.

The register is extra-dry dial and hermatically sealed (IP68) with magnetic transmission.
It registers in cubic meter units and protected by a resistant lid. The pivot of impeller chamber, turbine which is supported by a sapphire and rested on a stainless steel shaft are made to guarantee aganist any corrosion or damage. Suitable for pre-equipped or equipped for the comminication.

- **Meter Body / Housing**

The body/housing of the water meter, flanged type, make of ductile iron (cast) corrosion protected by epoxy powder coating both inside and outside. A visible arrow on both sides of the body shows the direction of water flow.

- **Register Ring (Cap)**

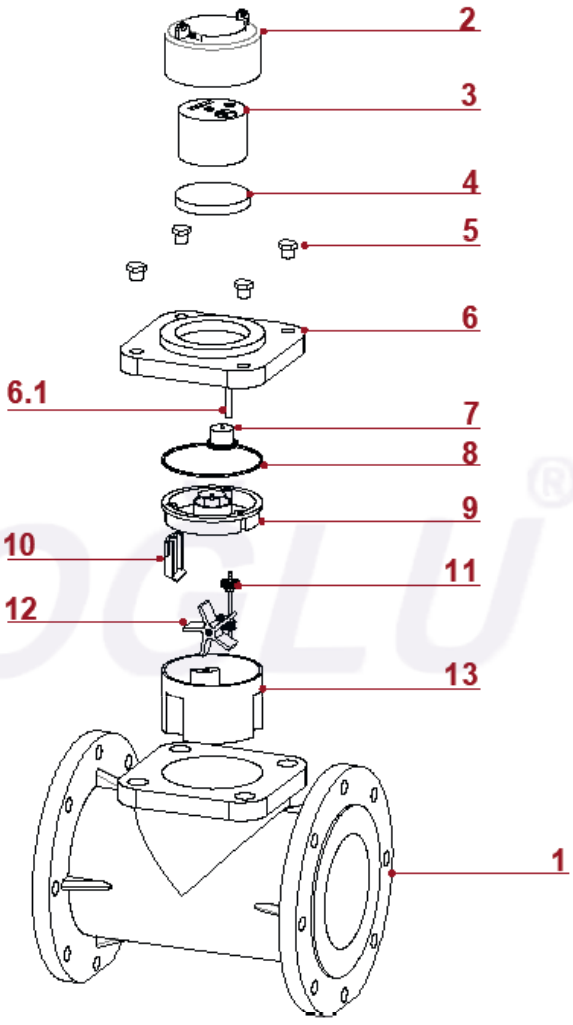
Register Ring (Cap) make of cast iron or plastic. The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

- **Register Protective Cover (Glass) and Register Cover (Lid)**

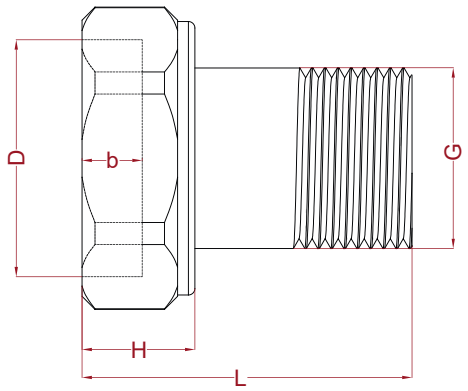
The register protective cover is made of sturdy polycarbone to avaid condensation or enable the reading anyway, has a thickness of min. 3 mm which prevents any mechanical tempering and scratch resistance.The magnetic transmission interface is tamper-proof (protection from external magnetic influences). The protection of register polycarbone (lid) is made of steel or plastic.

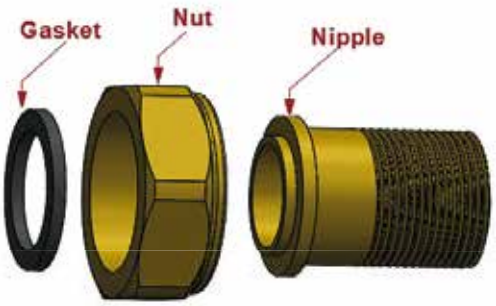
- **Strainer and Non-Return Valve (Optional)**

If there is very heavy contamination in pipeline, external strainer can be inserted at the flow inlet to the meter, without dismantling the meter and/or breaking the seal. Durable external non-return valve can be integrated at meter body/housing at outlet-side.



Water Mater Connectors





General Specifications

Working Temperature : -10..+100°C (PN16)

Standards

Tread Standard : EN ISO 228-1

Tests : TS EN 12266-1

Applications

Hot and Cold Water Systems

Meterial Specifications	Part Name	Material
	Nipple	CuZn40Pb2 - CW617N / (Brass)
	Nut	CuZn40Pb2 - CW617N / (Brass)
	Gasket	EPDM - NBR

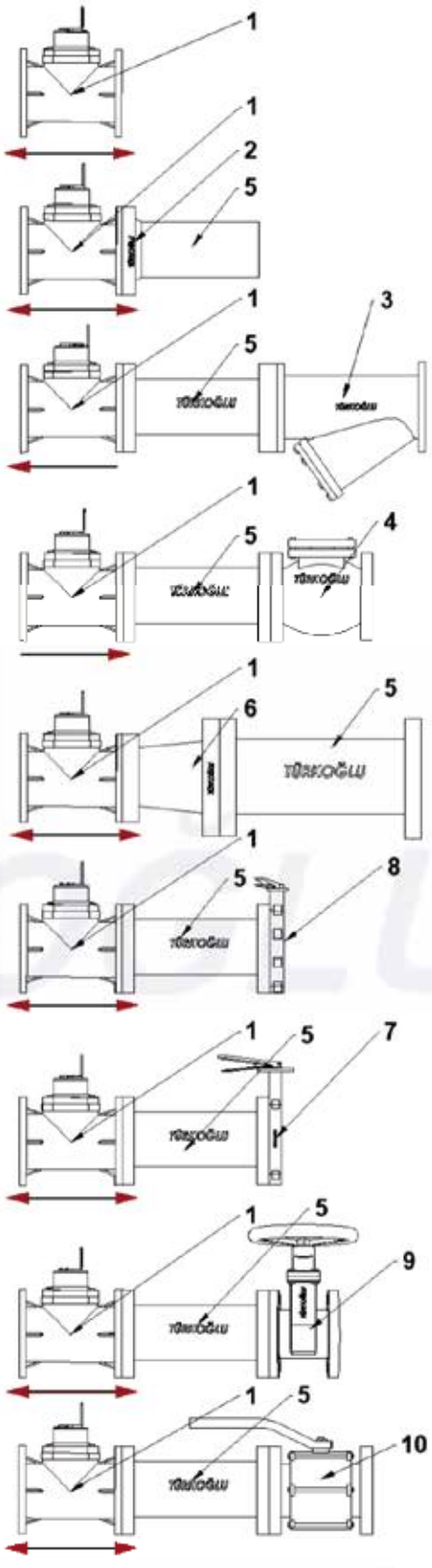
Dimensions	Pressure	16 Bar						
	Nominal Diameter (Dn)	Dn	15	20	25	32	40	50
		G	½″	¾″	1″	1¼″	1½″	2″
	Dimensions	b	5,6	5,8	6,6	7,9	8,2	10,1
		H	12,7	13,4	15	17,5	18,6	20,4
		L	37,5	39,6	49,5	48,5	51,7	60
		D	¾″	1″	1¼″	1½″	2″	2½″
	Weight (Kg)	kg	2x0,075	2x0,076	0,149x2	0,203x2	0,302x2	0,488x2

*Tolerance ±1

Single Jet Water Meter Connections

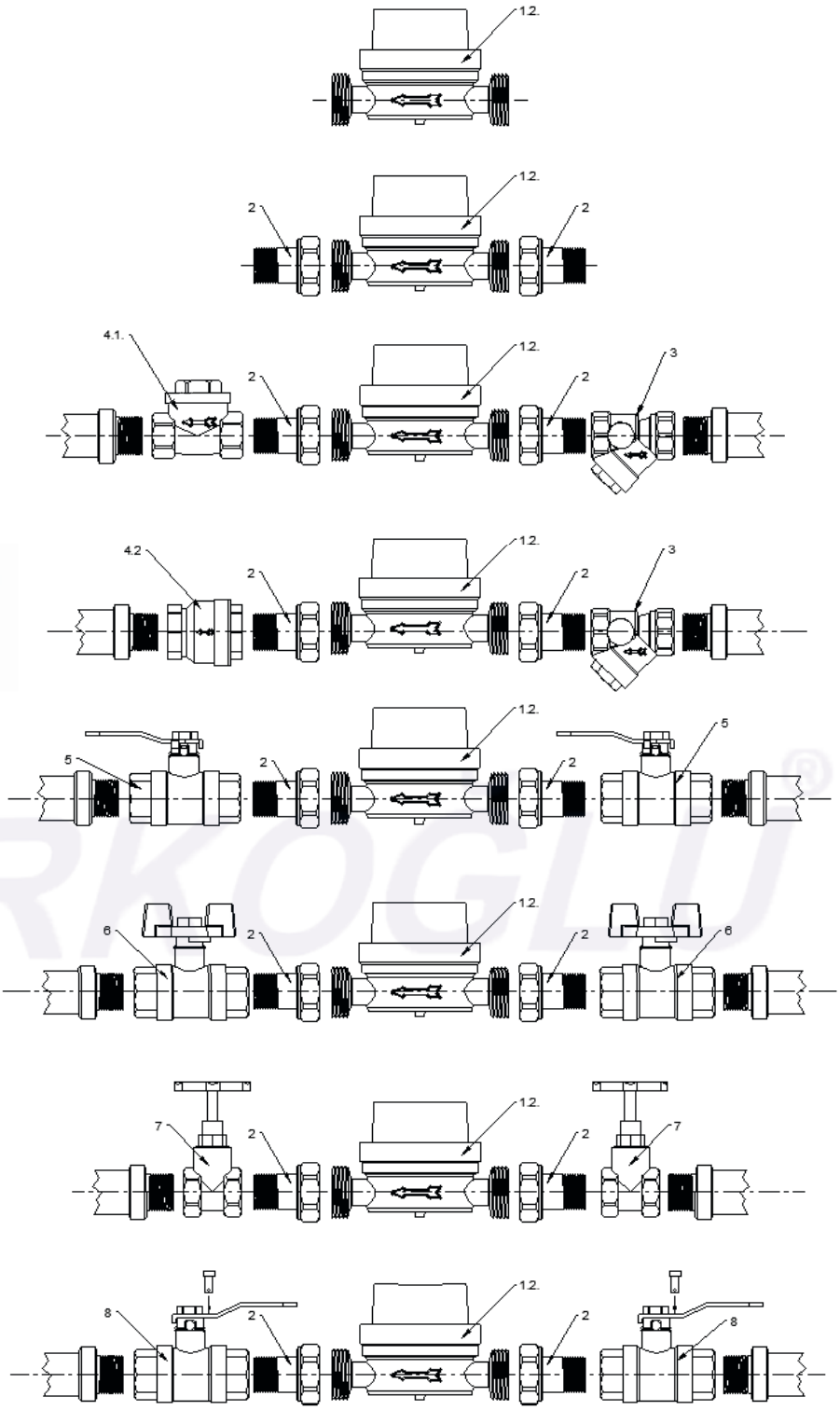
1	Woltman Water Mater
2	Flange
3	Y-Strainer
4	Swing Type Check (Non-Return) Valve
5	Extension Pipe
6	Reducing Extension Pipe
7	Butterfly Valve (Wafer Type)
8	Butterfly Valve (Lug Type)
9	Gate Valve
10	Ball Valve

(NOTE: *Arrows indicate flow direction assembly*)



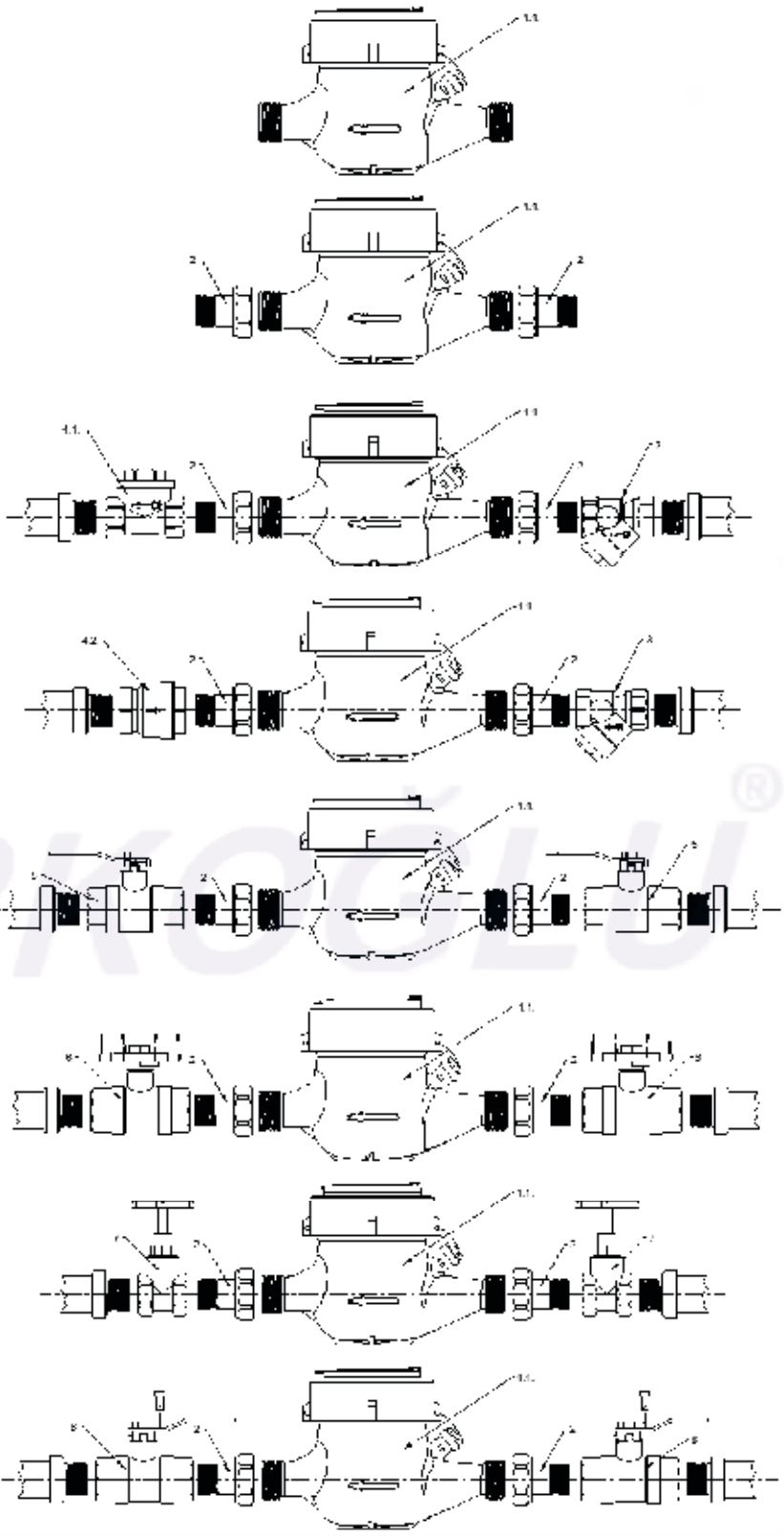
Single Jet Water Meter Connections

1.2	Single Jet Water Meter
2	Water Meter Connectors
3	Strainer
4.1	Swing Check Valve
4.2	Vertical Check Valve
5	Ball Valve
6	Ball Valve (Butterfly Handle)
7	Gate Valve
8	Lockable Ball Valve



Multi Jet Water Meter Connections

1.1	Multi Jet Water Meter
2	Water Meter Connectors
3	Strainer
4.1	Swing Check Valve
4.2	Vertical Check Valve
5	Ball Valve
6	Ball Valve (Butterfly Handle)
7	Gate Valve
8	Lockable Ball Valve

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Okružní 31, 638 00 Brno
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EC-type examination certificate
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Number: TCM 142/14 - 5172
EC-TYPE EXAMINATION CERTIFICATE
Number: TCM 142/14 - 5171
Certificat de examinare CE de tip
EC - type examination Certificate
EC-TYPE EXAMINATION CERTIFICATE
Number: TCM 142/14 - 5173


CERTIFICATE
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ISO 9001:2015
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