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
Flange connected
Register cap made of steel or plastic with lid
Electrostatic e/p powder painted
Spare parts and service available for 10 years
2 years of guaranted

Principle Faction

Interchangeable measuring mechanism
Metrological range R100 (ClassB)
Horizontal installation
High sensitivity at starting flow rate

High resistance to water impurities
Hermetically sealed register (IP68)
Available for optical direct reading

Equipable with Pulse output, MBus (Wire, Wireless),RF
Magnetic transmission
Water temperature up to 50°C
The pressure loss class ΔP 63
The installation sensitivity class U10 D5
Accuracy class 2

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.

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:

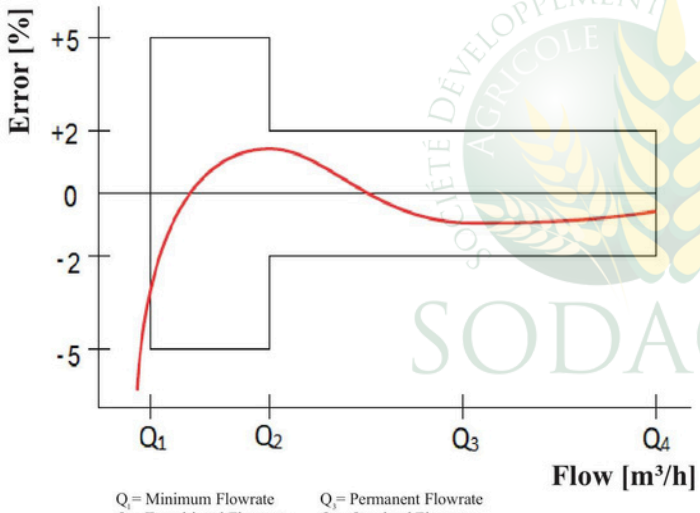
EC type-examination certificate in conformity with

- 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

Typical Accuracy Curve:

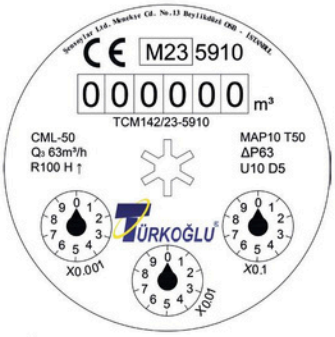


Q_1= Minimum Flowrate
Q_2= Transitional Flowrate
Q_3= Permanent Flowrate
Q_4= Overload Flowrate

www.turkogluvana.com - www.turkoglumeters.com / info@turkogluvana.com - info@turkoglumeters.com

Marking:

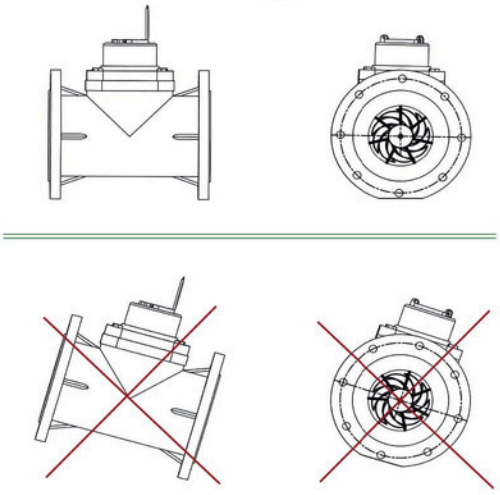
The manufacturer's trade mark, Nominal flow rate (Q3), Metrological ratio (R), Nominal size of the meter, Maximum working pressure (MAP), Pressure head loss class (ΔP), Type of the meter (Model), EC-type examination certificate number, Year of manufacturing, Mounting position, Maximum water temperature (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:

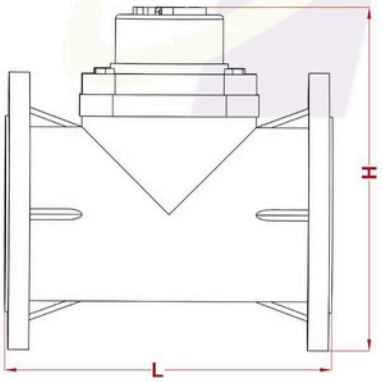
Meter must be installed in a low point of the pipeline with the arrow cast on the body showing direction of the water flow. All pipework must be flushed out to remove all impurities before fitting the water meter.An upstream stop valve or gate valve is recommended to allow installation and removal of 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.

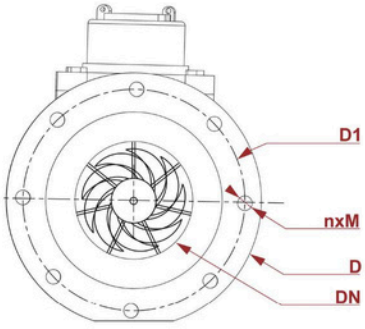


Reed Pulse Emitter Device:

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						

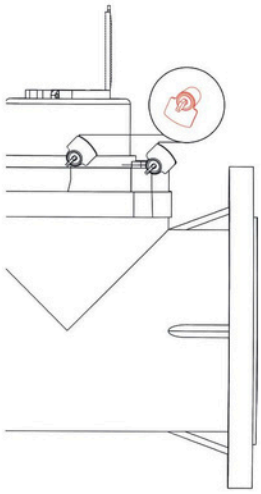
Flange ISO 7005 - 2/ EN 1092 - PN16

www.turkogluvana.com - www.turkoglumeters.com / info@turkogluvana.com - info@turkoglumeters.com

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.

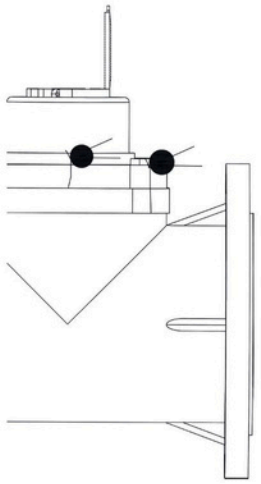


•Meter Seals

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

•Assembly Diagram

The body and plastic components of the water meter are assembled. After installation, a pre-leakage test is performed at 7 bars. Subsequently, a minimum static pressure test is conducted for 15 minutes at 25 bars, followed by 1 minute at 32 bars. If the test results are positive, the initial adjustment is made. Then, the Q4, Q3, Q2, and Q1 sensitivity tests are applied. Finally, sealing procedures are carried out.



Stainless Steel 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 (m^3/h)	Q4		≤50	≤78.75	≤125	≤200	≤200	≤500	≤787.5
		Nominal Flow Rate (m^3/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	[m^3]		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.

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)**

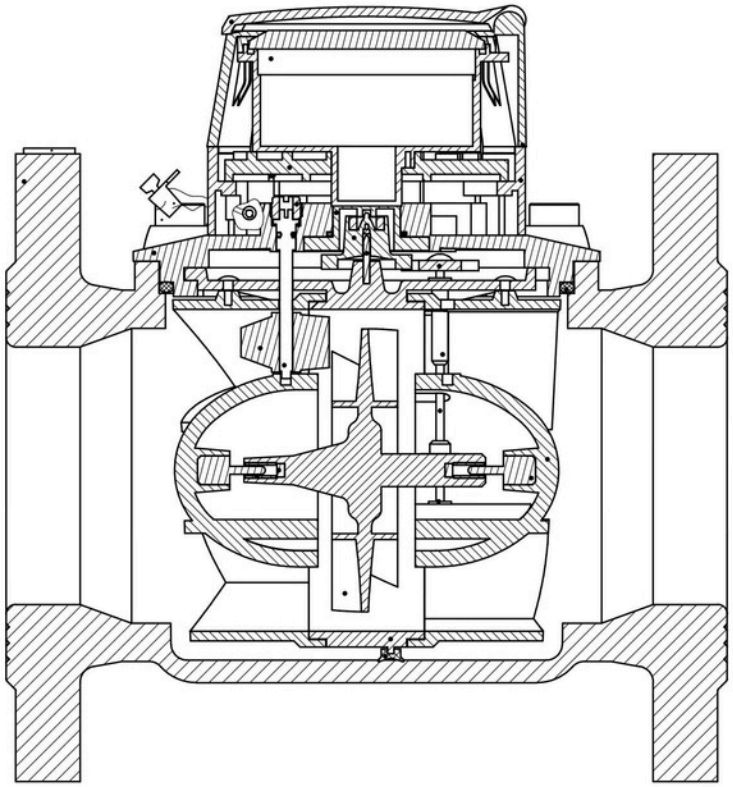
Register Ring (Cap) make of cast iron or plastic. The material can be accessible or removable in order to maintain the internal parts of the meter. Manufacturer's meter serial number are engraved on the register ring (Cap) covering the meter.

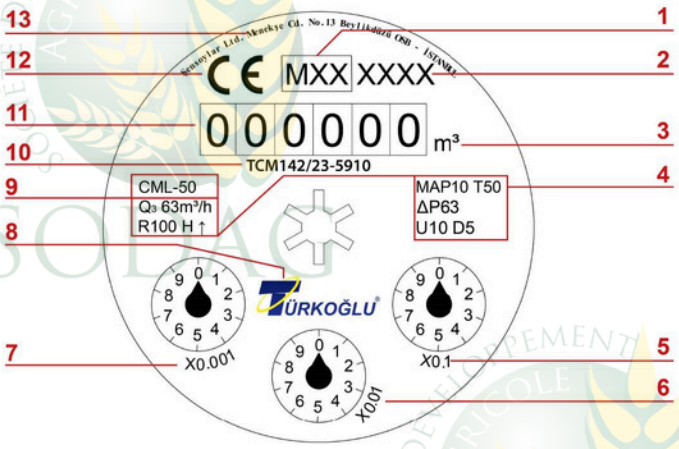
- **Register Protective Cover (Glass) and Register Cover (Lid)**

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)**

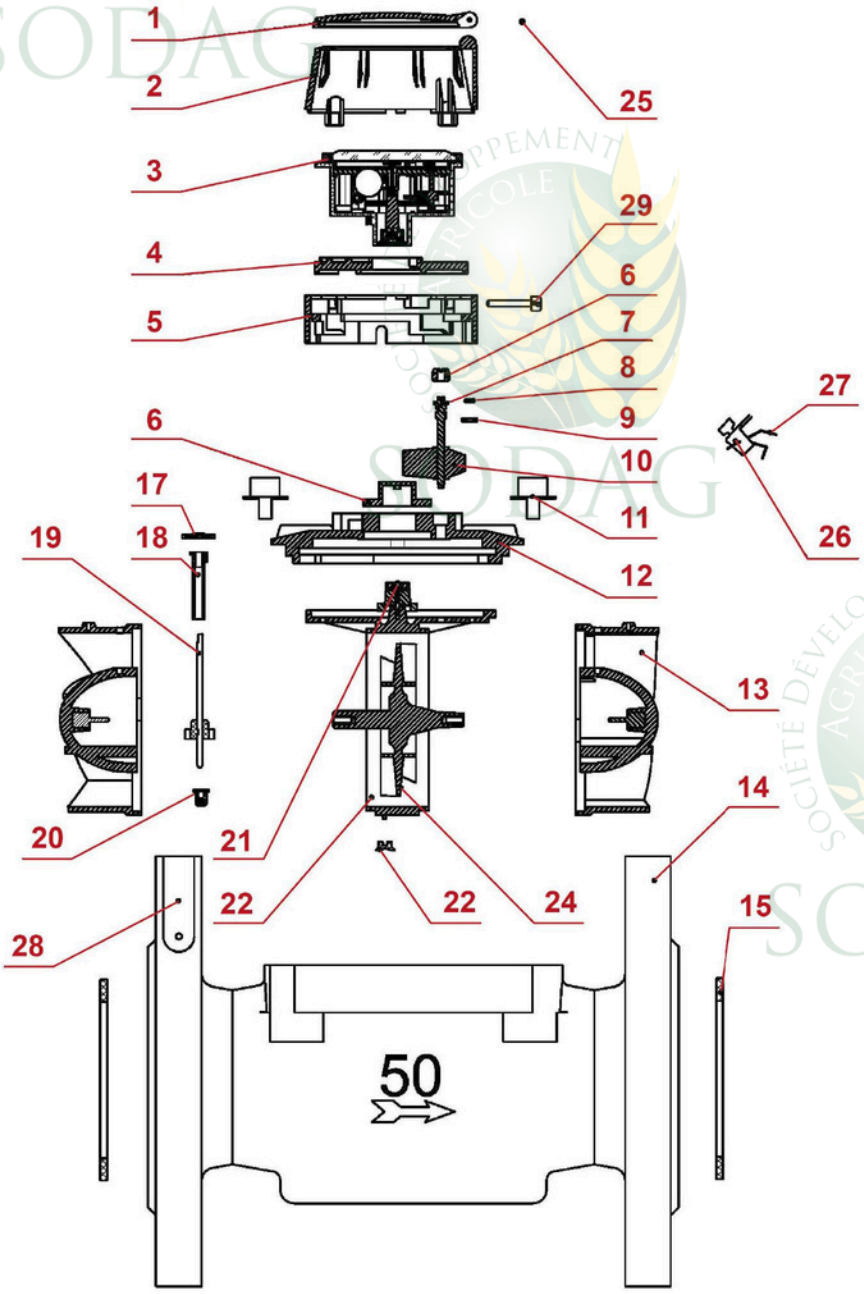
If there is very heavy contamination in pipeline, external strainer can be inserted at the flow inlet to the meter, without dismantling the meter and/or breaking the seal. Durable external non-return valve can be integrated at meter body/housing at outlet-side.





1: YEARS
2: THE QUALITY ASSURANCE OF PRODUCTION PROCESS
3: UNIT OF VOLUME
4: Q3: NOMINEL FLOW RATE / R100: R CLASS METROLOGICAL RATIO
H: MOUNTING POSITION / MAP: MAXIMUM WORKING PRESSURE
ΔP: PRESSURE LOSS CLASSES / T50: TEMPERATURE CLASS
5: 100LT.
6: 10LT.
7: 1LT.
8: BRAND
9: TYPE OF THE METERS
10: EC TYPE EXAMINATION CERTIFICATE
11: VOLUME UNIT OF THE INDEX
12: EUROPEAN INTEGRATION
13: ADDRESS

TECHNICAL AND ORIGINAL DRAWINGS

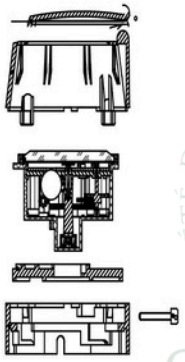
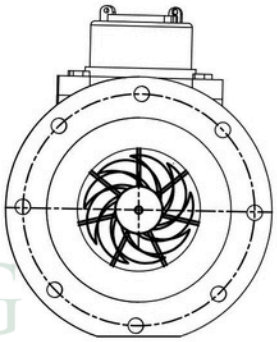
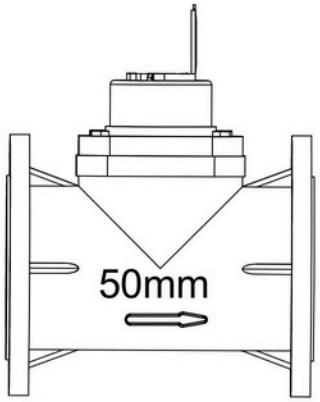


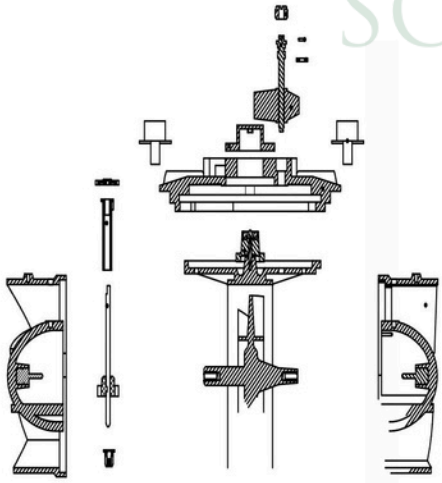
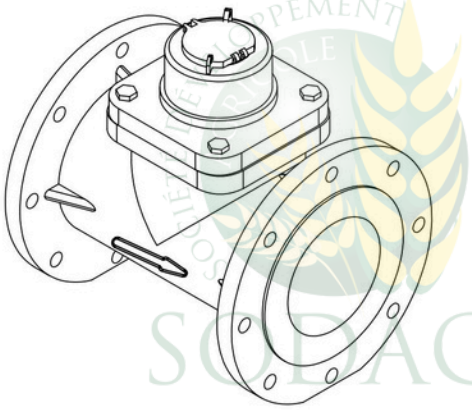
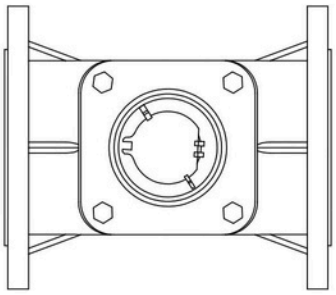
	NAME	MATERIAL
1	COVER	PLASTIC (PC)
2	UPPER COVER	PLASTIC (PC)
3	REGISTER	PLASTIC
4	PLATE	PLASTIC (PC)
5	LOW COVER	PLASTIC (PC)
6	ADJUSTING SCREW	BRASS (H62)
7	ADJUSTING SHAFT	STAINLESS STELL (1Cr18Ni10)
8	O-RING	SILICA GEL
9	RING	SILICA GEL
10	ADJUSTING WING	PLASTIC (POM)
11	SCREW	STAINLESS STELL (1Cr18Ni9)
12	FLANGE COVER	DUCTILE CAST IRON (Qt400)
13	RECTIFIER BASE INLET	PLASTIC (PPO)
14	METER BODY	DUCTILE CAST IRON (Qt400)
15	RING	SILICA GEL
16	BRASS INSERT	BRASS (H62)
17	SPIRAL GEAR	PLASTIC (POM)
18	UPPER BUSH	TEFLON (PSS+30%GF+PTFE)
19	SPIRAL GEAR	
20	LOW BUSH	TEFLON (PSS+30%GF+PTFE)
21	CENTRAL GEAR	PLASTIC (POM)
22	CENTRAL FRAME	PLASTIC (PPO)
23	CHOKE BELT	SILICA GEL
24	VANE WHELL BASE	PLASTIC (PPO)
25	INSERTED PIN	BRASS(H62)
26	LEAD SEAL	LEAD (PLUMBUM) / PLASTIC (PC)
27	WIRE	BRASS (H62)
28	NAME PLATE	ALIMINNIUM - PLEXIGLASS
29	SCREW	STAINLESS STELL (1Cr18Ni9)

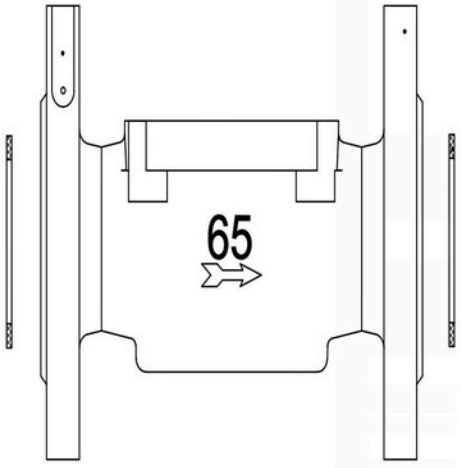
PRODUCT DESCRIPTION IMAGES







www.turkogluvana.com - www.turkoglumeters.com / info@turkogluvana.com - info@turkoglumeters.com