CERTIFICATE OF CONFORMITY

SNAS
Reg. No. 058/P-017

Number: **2019 CV 110** Rev. 0

Issued by	**Slovenská legálna metrológia, n. o.,** Hviezdoslavova 31 974 01 Banská Bystrica, Slovakia
In accordance with	**EN ISO 4064-1: 2014** Water meters for cold potable water and hot water Part 1: Metrological and technical requirements (ISO 4064-1:2014)
Applicant (manufacturer)	**YAVUZ METAL SANAYİ VE TİCARET ANONİM ŞİRKETİ** **Organize Sanayi Bolgesi 2. Cadde No:4** **Arsin / TRABZON** **Turkey**
In respect of	**water meter for cold potable water and hot water**
Type:	***KT11, KT12, KT13, KT14, KT15, KT16, KT17, KT18*** Temperature classes: T30, T50, T70, T90, T30/90
Description	*The principal technical and metrological data, characteristics, instrument description and approval conditions are set out in the Descriptive Annex to this certificate number 2019 CV 110 (16 pages), which is part of this certificate. The test reports, designs, schematic diagrams and documentation used during certification process are recorded under reference folder YAVUZ_KT11 / KT18_00.* *This Certificate attests the conformity of the above identified type (represented by the sample or samples identified in the reference folder YAVUZ_KT11 / KT18_00) with the requirements of the EN ISO 4064-1: 2014.* *This Certificate relates only to the metrological and technical characteristics of the type of instrument covered by the relevant European Standard identified above. This Certificate does not bestow any form of legal international approval.*
Date of issue:	2019-10-16

SLOVAK LEGAL METROLOGY SLM

Ing. Štefan Král, PhD.
Director of Product certification body

Digitally signed by Caraman Dmitri
Date: 2024.03.10 02:33:15 EET
Reason: MoldSign Signature
Location: Moldova

1. Designation

The mechanical single-jet dry dial water meters types ***KT11, KT12, KT13, KT14, KT15, KT16, KT17, KT18*** are designed to measure, memorise and display the volume of water passing through the measurement transducer at metering conditions. They are intended for the measurement of volumes (consumption) of clean cold and hot water in household and commercial use.
The mechanical water meters *series KT* are single-jet rotary vane wheel water meters with the mechanical indication device and with brass body.
The water meters *series KT* are installed to operate into pipe lines in horizontal position with the indication device positioned at the top and in vertical position with the indication device positioned at the side (according to tables in point 3). The water meter is not designed to measure the reverse flow.

2. Description

Essential parts of the water meters:

- measuring mechanism - consisting of a measuring chamber and the rotary vane wheel (impeller) with an axle perpendicular to the flow direction;
- dry type mechanical register and indication device with 8 digital drums and 1 pointer with gearing mechanism for all figures, inside vacuumed cover (including magnetic field protection),
- brass housings of water meter with inlet and outlet connections;
- adjustment device - flux adjustment part;
- magnetic coupling for the connection of the register with the measuring part (impeller);
- recording mechanism can rotate 359 degrees around the axis (optional).

Non-essential parts of water meter:

- strainer in the inlet of the meter;
- non - return valve in the outlet tube of water meter (optional).

2.1 Metrological functions

- measuring, memorizing and displaying the volume of water passing through the water meter

2.2 Software

- not applicable

2.3 Integrated equipment and functions

- data output module RF or MBUS (optional);
- pulse output module (optional).

The above mentioned ancillary devices were not assessed as a subject to legal metrological control (see note 3 of the 3.1.8 of EN ISO 4064-1:2014). Via the communication no legally relevant data can be transferred.

3. Technical and metrological data

3.1 Technical and metrological data for water meter type *KT11*

Type		***KT11***			
Nominal diameter DN	mm	15			
Permanent flowrate Q_3	m^3/h	1,6			
Minimum flowrate Q_1	m^3/h	0,0200	0,0160	0,0400	0,0320
Transitional flowrate Q_2	m^3/h	0,0320	0,0256	0,0640	0,0512
Overload flowrate Q_4	m^3/h	2			
Ratio Q_3/Q_1	-	80	100	40	50
Ratio Q_2/Q_1	-	1,6			
Connection thread	-	G ¾ B			
Construction length L	mm	110			
Installation position	-	H		V	
Water temperature range	°C	0,1 to 90			
Meter temperature class	-	T30, T50, T70, T90, T30/90			
Maximum working pressure	bar	16			
Pressure loss ΔP	bar	0,63			
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)			
Maximum permissible error in lower flowrates ranges $Q_1 \leq Q < Q_2$	%	± 5			
Scale interval	m^3	0,00005			
Capacity of calculator	m^3	99999			
Mechanical class	-	M1			
Climatic class	°C	-10 to +55			
Electromagnetic class	-	E1			
Flow profile sensitivity class	-	U0 D0			

3.2 Technical and metrological data for water meter type *KT12*

Type		***KT12***				
Nominal diameter DN	mm	15				
Permanent flowrate Q_3	m^3/h	2,5				
Minimum flowrate Q_1	m^3/h	0,0313	0,0250	0,0156	0,0625	0,0500
Transitional flowrate Q_2	m^3/h	0,0500	0,0400	0,0250	0,1000	0,0800
Overload flowrate Q_4	m^3/h	3,125				
Ratio Q_3/Q_1	-	80	100	160	40	50

Ratio Q_2/Q_1	-	1,6	
Connection thread	-	G ¾ B	
Construction length L	mm	110	
Installation position	-	H	V
Water temperature range	°C	0,1 to 90	
Meter temperature class	-	T30, T50, T70, T90, T30/90	
Maximum working pressure	bar	16	
Pressure loss ΔP	bar	0,63	
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)	
Maximum permissible error in lower flowrates ranges $Q_1 \leq Q < Q_2$	%	± 5	
Scale interval	m^3	0,00005	
Capacity of calculator	m^3	99999	
Mechanical class	-	M1	
Climatic class	°C	-10 to +55	
Electromagnetic class	-	E1	
Flow profile sensitivity class	-	U0 D0	

3.3 Technical and metrological data for water meter type *KT13*

Type		***KT13***				
Nominal diameter DN	mm	20				
Permanent flowrate Q_3	m^3/h	2,5				
Minimum flowrate Q_1	m^3/h	0,0312	0,0250	0,0156	0,0625	0,0500
Transitional flowrate Q_2	m^3/h	0,0500	0,0400	0,0250	0,1000	0,0800
Overload flowrate Q_4	m^3/h	3,125				
Ratio Q_3/Q_1	-	80	100	160	40	50
Ratio Q_2/Q_1	-	1,6				
Connection thread	-	G 1 B				
Construction length L	mm	110				
Installation position	-	H			V	
Water temperature range	°C	0,1 to 90				
Meter temperature class	-	T30, T50, T70, T90, T30/90				
Maximum working pressure	bar	16				
Pressure loss ΔP	bar	0,63				
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)				
Maximum permissible error in lower	%	± 5				

flowrates ranges $Q_1 \leq Q < Q_2$		
Scale interval	m^3	0,00005
Capacity of calculator	m^3	99999
Mechanical class	-	M1
Climatic class	°C	-10 to +55
Electromagnetic class	-	E1
Flow profile sensitivity class	-	U0 D0

3.4 Technical and metrological data for water meter type *KT14*

Type		***KT14***				
Nominal diameter DN	mm	20				
Permanent flowrate Q_3	m^3/h	2,5				
Minimum flowrate Q_1	m^3/h	0,0312	0,0250	0,0156	0,0625	0,0500
Transitional flowrate Q_2	m^3/h	0,0500	0,0400	0,0250	0,1000	0,0800
Overload flowrate Q_4	m^3/h	3,125				
Ratio Q_3/Q_1	-	80	100	160	40	50
Ratio Q_2/Q_1	-	1,6				
Connection thread	-	G 1 B				
Construction length L	mm	130				
Installation position	-	H			V	
Water temperature range	°C	0,1 to 90				
Meter temperature class	-	T30, T50, T70, T90, T30/90				
Maximum working pressure	bar	16				
Pressure loss ΔP	bar	0,63				
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)				
Maximum permissible error in lower flowrates ranges $Q_1 \leq Q < Q_2$	%	± 5				
Scale interval	m^3	0,00005				
Capacity of calculator	m^3	99999				
Mechanical class	-	M1				
Climatic class	°C	-10 to +55				
Electromagnetic class	-	E1				
Flow profile sensitivity class	-	U0 D0				

3.5 Technical and metrological data for water meter type *KT15*

Type		***KT15***				
Nominal diameter DN	mm	20				
Permanent flowrate Q_3	m^3/h	2,5				
Minimum flowrate Q_1	m^3/h	0,0312	0,0250	0,0156	0,0625	0,0500
Transitional flowrate Q_2	m^3/h	0,0500	0,0400	0,0250	0,1000	0,0800
Overload flowrate Q_4	m^3/h	3,125				
Ratio Q_3/Q_1	-	80	100	160	40	50
Ratio Q_2/Q_1	-	1,6				
Connection thread	-	G 1 B				
Construction length L	mm	190				
Installation position	-	H			V	
Water temperature range	°C	0,1 to 90				
Meter temperature class	-	T30, T50, T70, T90, T30/90				
Maximum working pressure	bar	16				
Pressure loss ΔP	bar	0,63				
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)				
Maximum permissible error in lower flowrates ranges $Q_1 \leq Q < Q_2$	%	± 5				
Scale interval	m^3	0,00005				
Capacity of calculator	m^3	99999				
Mechanical class	-	M1				
Climatic class	°C	-10 to +55				
Electromagnetic class	-	E1				
Flow profile sensitivity class	-	U0 D0				

3.6 Technical and metrological data for water meter type *KT16*

Type		***KT16***				
Nominal diameter DN	mm	20				
Permanent flowrate Q_3	m^3/h	4				
Minimum flowrate Q_1	m^3/h	0,0500	0,0400	0,0250	0,1000	0,0800
Transitional flowrate Q_2	m^3/h	0,0800	0,0640	0,0400	0,1600	0,1280
Overload flowrate Q_4	m^3/h	5				
Ratio Q_3/Q_1	-	80	100	160	40	50
Ratio Q_2/Q_1	-	1,6				
Connection thread	-	G 1 B				

Construction length L	mm	110	
Installation position	-	H	V
Water temperature range	°C	0,1 to 90	
Meter temperature class	-	T30, T50, T70, T90, T30/90	
Maximum working pressure	bar	16	
Pressure loss ΔP	bar	0,63	
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)	
Maximum permissible error in lower flowrates ranges $Q_1 \leq Q < Q_2$	%	± 5	
Scale interval	m^3	0,00005	
Capacity of calculator	m^3	99999	
Mechanical class	-	M1	
Climatic class	°C	-10 to +55	
Electromagnetic class	-	E1	
Flow profile sensitivity class	-	U0 D0	

3.7 Technical and metrological data for water meter type *KT17*

Type		***KT17***				
Nominal diameter DN	mm	20				
Permanent flowrate Q_3	m^3/h	4				
Minimum flowrate Q_1	m^3/h	0,0500	0,0400	0,0250	0,1000	0,0800
Transitional flowrate Q_2	m^3/h	0,0800	0,0640	0,0400	0,1600	0,1280
Overload flowrate Q_4	m^3/h	5				
Ratio Q_3/Q_1	-	80	100	160	40	50
Ratio Q_2/Q_1	-	1,6				
Connection thread	-	G 1 B				
Construction length L	mm	130				
Installation position	-	H			V	
Water temperature range	°C	0,1 to 90				
Meter temperature class	-	T30, T50, T70, T90, T30/90				
Maximum working pressure	bar	16				
Pressure loss ΔP	bar	0,63				
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)				
Maximum permissible error in lower flowrates ranges $Q_1 \leq Q < Q_2$	%	± 5				
Scale interval	m^3	0,00005				

Capacity of calculator	m^3	99999
Mechanical class	-	M1
Climatic class	°C	-10 to +55
Electromagnetic class	-	E1
Flow profile sensitivity class	-	U0 D0

3.8 Technical and metrological data for water meter type *KT18*

Type		***KT18***				
Nominal diameter DN	mm	20				
Permanent flowrate Q_3	m^3/h	4				
Minimum flowrate Q_1	m^3/h	0,0500	0,0400	0,0250	0,1000	0,0800
Transitional flowrate Q_2	m^3/h	0,0800	0,0640	0,0400	0,1600	0,1280
Overload flowrate Q_4	m^3/h	5				
Ratio Q_3/Q_1	-	80	100	160	40	50
Ratio Q_2/Q_1	-	1,6				
Connection thread	-	G 1 B				
Construction length L	mm	190				
Installation position	-	H			V	
Water temperature range	°C	0,1 to 90				
Meter temperature class	-	T30, T50, T70, T90, T30/90				
Maximum working pressure	bar	16				
Pressure loss ΔP	bar	0,63				
Maximum permissible error in upper flowrates range $Q_2 \leq Q \leq Q_4$	%	± 2 (at $\Theta \leq 30°C$) ± 3 (at $\Theta > 30°C$)				
Maximum permissible error in lower flowrates ranges $Q_1 \leq Q < Q_2$	%	± 5				
Scale interval	m^3	0,00005				
Capacity of calculator	m^3	99999				
Mechanical class	-	M1				
Climatic class	°C	-10 to +55				
Electromagnetic class	-	E1				
Flow profile sensitivity class	-	U0 D0				

4. Interfaces and compatibility conditions

- not applicable.

5. Marking and inscriptions

Marking and inscriptions shall be in accordance with the point 6.6 of EN ISO 4064-1.

5.1 Designation of trademark on the water meters

The manufacturer uses following trademark on its water meters:

CEM

6. Security measures

The water meters shall be protected against unauthorised manipulation by one seal on seal ring securing the connection of the water meter head with the water meter body.

7. Documentation used for assessment purposes

- Evaluation report No 2019/CV003 from 08/02/2019, issued by SLM;
- Manufacturer`s technical documentation, component lists, drawings (cross sections, exploded view) are stored in folder YAVUZ_KT11 / KT18_00.

8. Standards and regulations used for assessment purposes

8.1 Regulations, harmonized standards and normative documents

- EN ISO 4064-1:2014

9. Final provisions on water meter

Construction, technical and metrological parameters of the meter must comply with the documentation presented within the process of certification. All the characteristics of the measuring instrument (including those not mentioned) shall meet the respective requirements of EN ISO 4064:2014.

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10. Figures

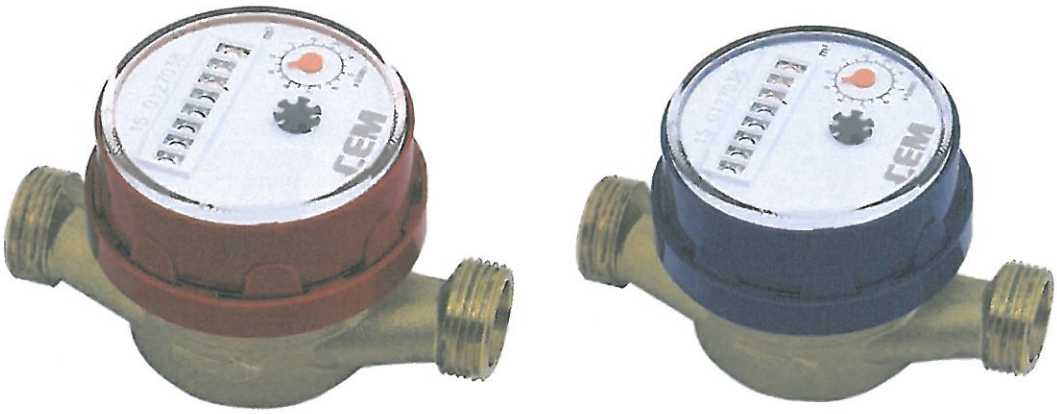
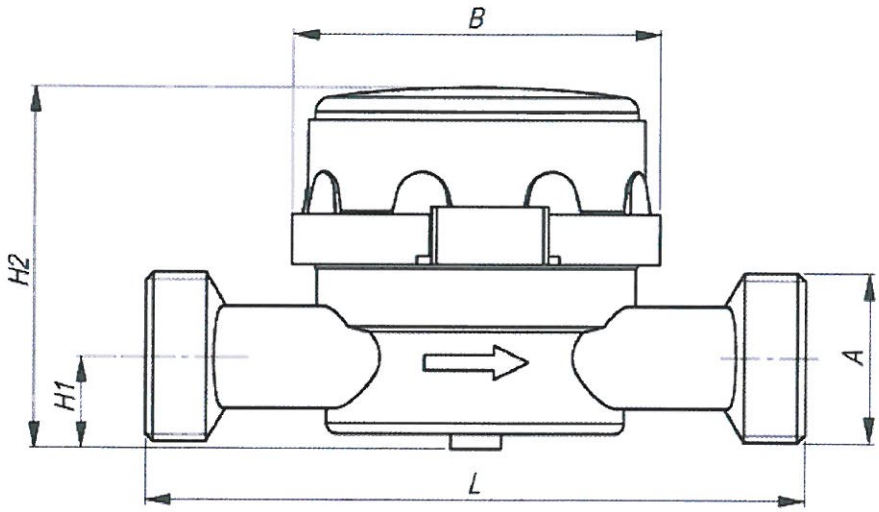


Fig. 1a: Illustrative view on water meters types *KT11 / KT18*

Fig. 1b: Illustrative view on water meters types *KT11 / KT18*



		KT11	KT12	KT13	KT14	KT15	KT16	KT17	KT18
DN		15		20					
L	mm	110	110	110	130	190	110	130	190
A	-	G ¾ B		G 1 B					
H1	mm	18							
H2	mm	71							
B	mm	70							

Fig. 2: Main dimensions on water meters types *KT11 / KT18*

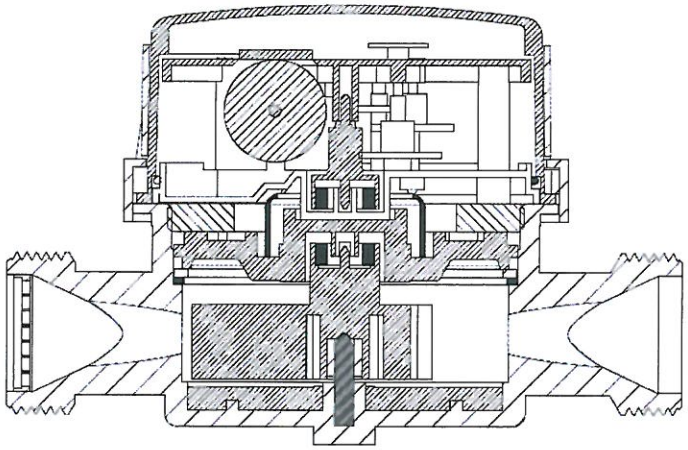


Fig. 3a: Cross section of water meters types *KT11* and *KT12*

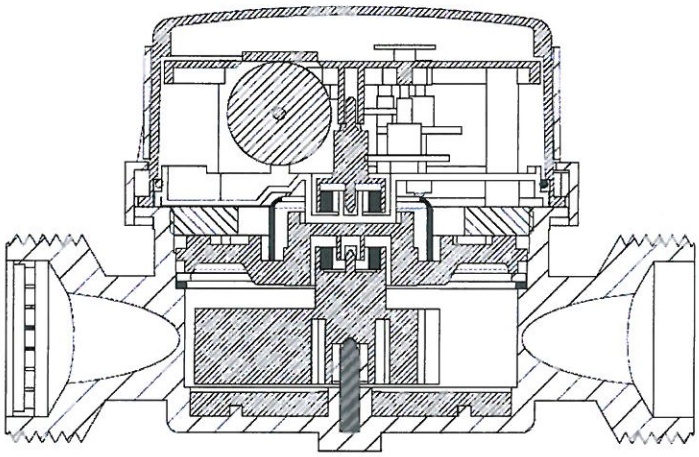


Fig. 3b: Cross section of water meters series *KT13* and *KT16*

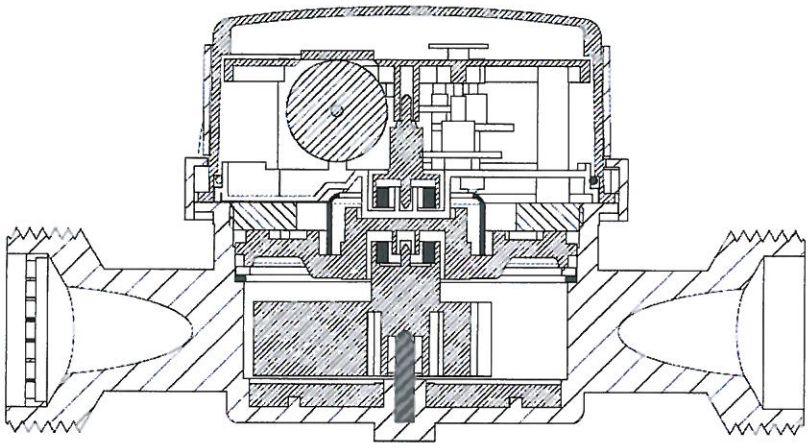


Fig. 3c: Cross section of water meters series *KT14* and *KT17*

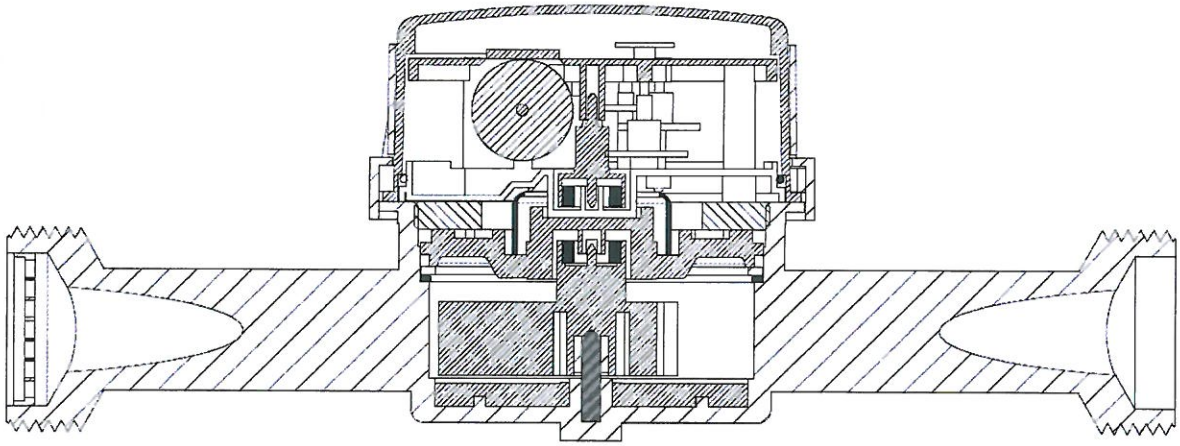


Fig. 3d: Cross section of water meters series *KT15* and *KT18*

Seal ring

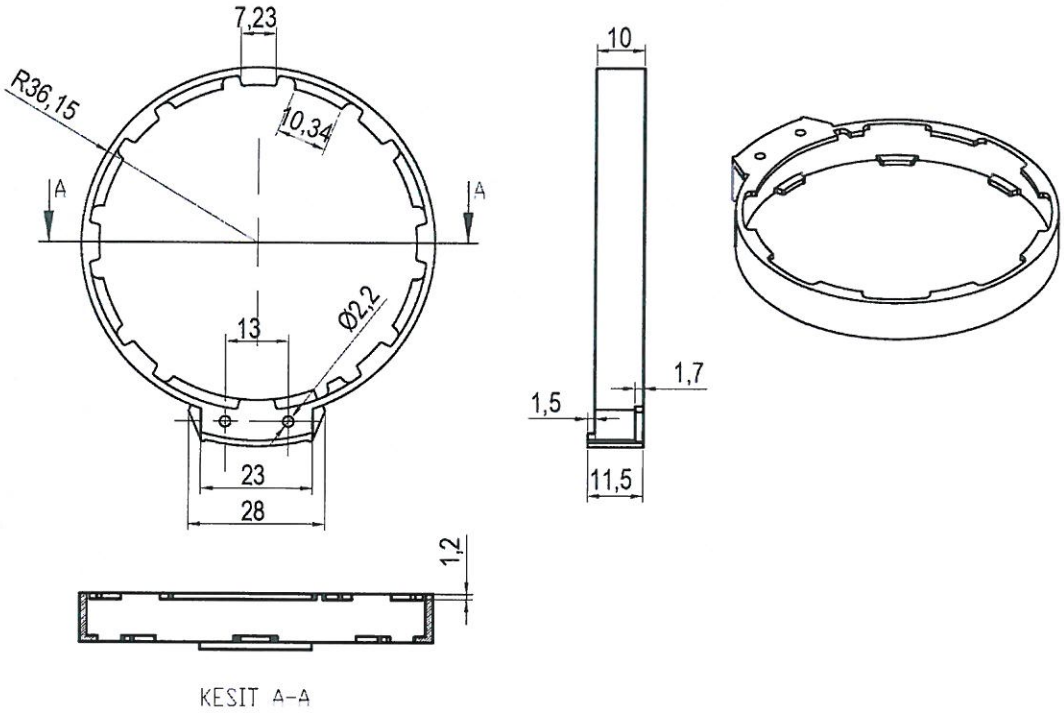


Fig. 4a: Sealing of water meters types *KT11 / KT18*
and view of seal ring

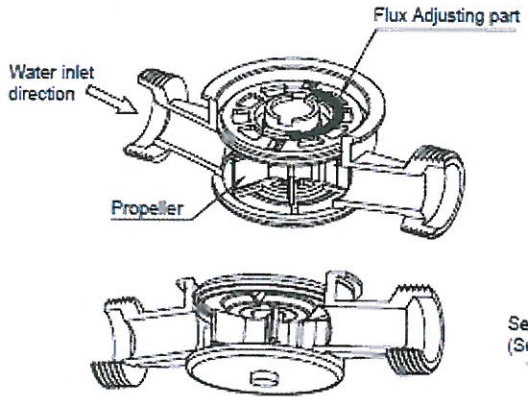


Figure 1

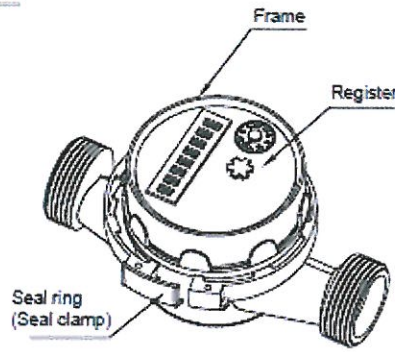


Figure 2

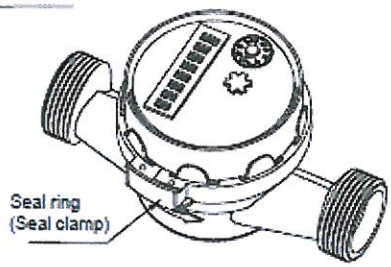


Figure 3

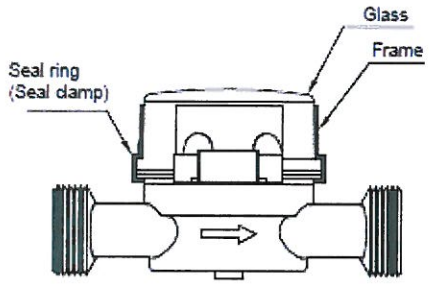


Figure 4

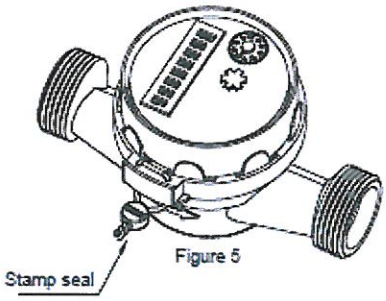
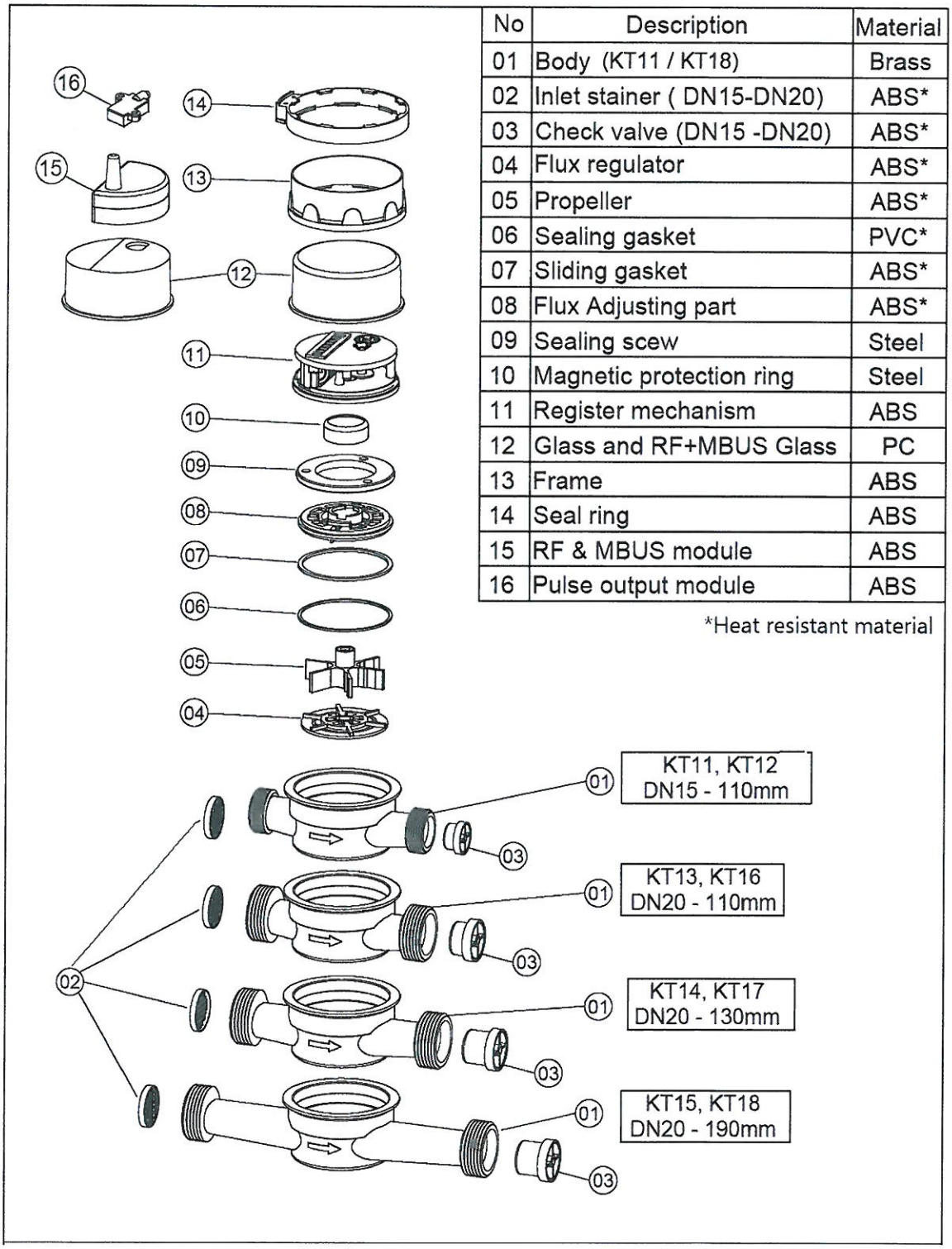


Figure 5

Adjustment and sealing

- The effect on the water propeller is changed by rotating the flux adjustment piece and brought to the desired position. (Figure 1)
- The register mechanism, glass, frame, and seal ring (seal clamp) are mounted on the water meter. (Figure 2)
- The seal is locked by closing the ring (clamp). (Figure 3)
- Seal ring (clamp) locks the glass and frame in to the body. The flow adjustment is protected against external influences. (Figure 4)
- Stainless steel wire is passed through the holes in the seal ring.
- Stainless steel wire wring through the stamp seal.
- Stamp seal is crushed and seal logo is printed on it.
- The water meter can not be intervened before stam seal or seal ring breaks. (Can not be intervened) (Figure 5)

Fig. 4b: Sealing of water meters types *KT11 / KT18* - description



No	Description	Material
01	Body (KT11 / KT18)	Brass
02	Inlet stainer (DN15-DN20)	ABS*
03	Check valve (DN15 -DN20)	ABS*
04	Flux regulator	ABS*
05	Propeller	ABS*
06	Sealing gasket	PVC*
07	Sliding gasket	ABS*
08	Flux Adjusting part	ABS*
09	Sealing scew	Steel
10	Magnetic protection ring	Steel
11	Register mechanism	ABS
12	Glass and RF+MBUS Glass	PC
13	Frame	ABS
14	Seal ring	ABS
15	RF & MBUS module	ABS
16	Pulse output module	ABS

*Heat resistant material

Fig. 5: Exploded view of water meters types *KT11 / KT18*

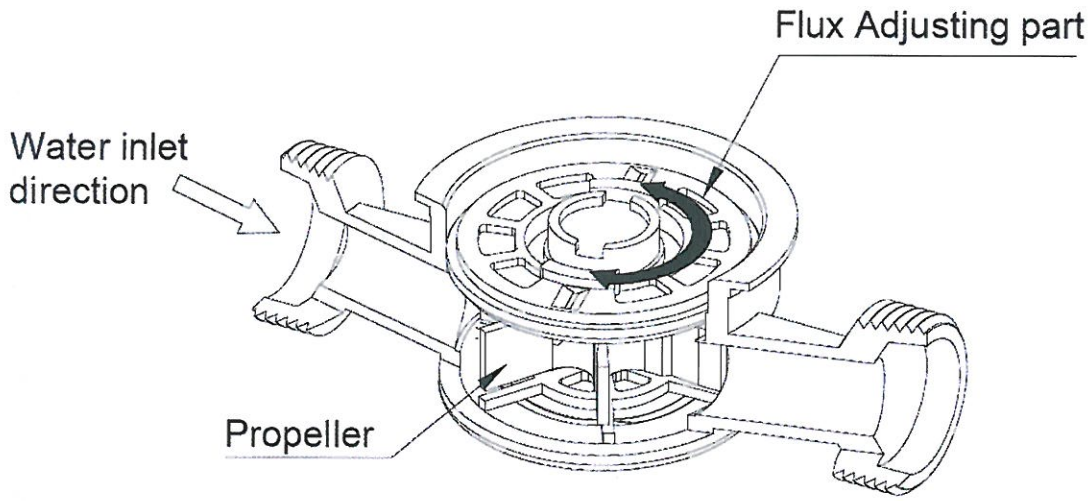


Fig. 6 Adjustment

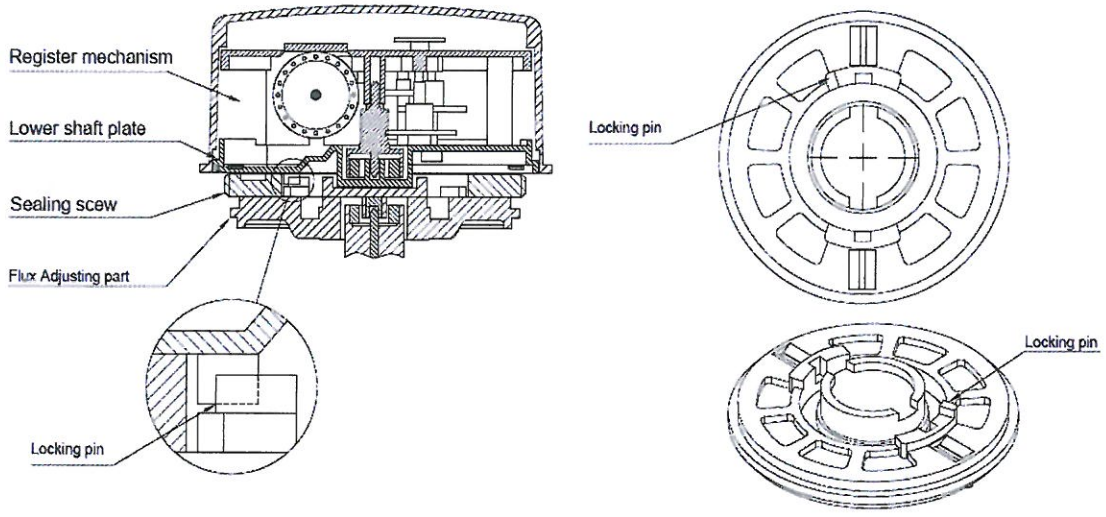


Fig. 7 Rotary register mechanism