



## Calamba Water District

Lakeview Subdivision, Halang, Calamba, Laguna  
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### WATER METER WITH TAIL PIECE

#### Scope

The water meter shall conform to requirements of ISO 4064 part 1: Measurement of Water Flow in Closed Conduits-Meters for Cold Potable Water.

#### Meter

1. Only Multi-jet water meter will be accepted.
2. Meter shall be manufactured by a company with a minimum of 40 years of experience in the manufacturing of water meters. It shall be preferably assembled/made in Europe, Israel or India

#### Meter capacity and dimensions shall be:

		SPECS	
Nominal Size	mm	15	25
Maximum Flowrate	Q <sub>4</sub> m <sup>3</sup> /h	2-5	5-12
Nominal Flowrate	Q <sub>3</sub> m <sup>3</sup> /h	1.5	3.5
Measuring Range	R m <sup>3</sup>	9,999	999,999
Accuracy			
	Q <sub>min</sub>	±5%	±5%
	Q <sub>t</sub>	±2%	±2%
	Q <sub>n</sub>	±2%	±2%
	Q <sub>max</sub>	±2%	±2%
Maximum Operating Pressure	bar	10	10
Maximum Temperature		30	30
DIMENSIONS			
Length with tail piece	mm	338	370-420
Width	mm	90 (± 5% tolerance)	95-105
Height	mm	100 (± 5% tolerance)	100-130
Weight	kg	1.5 (± 5% tolerance)	2.7-3.5
Length of tail piece	mm	(verify existing)	
Length with one tail piece @ outlet side with one coupling only	mm	264.5 w/tolerance 0.1mm +or - (verify existing)	

3. Meter body or casing shall be brand new manufactured brass and brass finish with anti-corrosion treatment. Meter bodies shall be smoothly finished free from defects. Bodies which have been repaired are not acceptable. All coating shall be free from defects of any kind. Meter Bodies shall have a common inlet-outlet axis and shall be suitable for

horizontal installation. With CWD Logo printed inside the insert at no cost with the procuring entity.

All external fasteners and seal shall be designed for easily disassembly, after a lengthy in-service use, without the need for special tools or equipment.

Metallurgical test result is subject for verification and retesting by the Procuring Entity and Manufacturer Mill Certificate shall be provided in every delivery.

4. Meters furnished under the specification shall be guaranteed to operate under a working water pressure of 100-150 psi without damage or leakage to any part.
5. Meters shall be factory tested and shall register in accordance with ISO 4064 standards. Any meter not meeting these standards will be rejected.
6. Meters durability or performance shall withstand at 10 years of service without repair.

#### *Measuring Chamber Assembly*

The measuring chamber of the meter shall be a self-contained unit manufactured and can withstand all normal conditions of operation without changes in form or dimensions. It shall be firmly seated and easily removed, and be secured so that the meter's accuracy will not be adversely affected by any distortion of the meter body. Metallurgical test result is subject for verification and retesting by the Procuring Entity.

#### *Register*

Register compartments shall be self-contained and hermetically sealed. Register compartments that rely upon a compressed gasket for the hermetical sealing and which can be opened to repair the gear train, shall include an approved desiccant capsule. Lock and side gears shall be secured fastened to the number of wheel disc and hubs. Tumbler pinions shall mesh accurately with the lock and side gears of the adjacent wheels at the turn over points. Frames, shafts, gears and pinions are made of suitable non-corroding materials.

The register reading shall be of the straight reading, cubic meter.

#### *Dial Lens*

The lens covering the register dial shall be securely fastened to achieve hermetical sealing and shall be of clear tempered glass of 5 mm minimum thickness (or of suitable synthetic polymer which shall be of high impact, ultra violet stabilized polycarbonate resin film of clear transparency). Dial lens shall be resistant to impact and abrasion. Impact resistance shall be taken as the capacity to resist the impact of a 12 mm diameter steel ball dropped from a height of one (1) meter without sustaining any evident damage. Abrasion resistance shall be taken as the capacity to resist permanent scratch marks using a material not harder than Philippine one-peso coin. Meter dial lenses shall be held in place by a hinged lid or similar holding device of suitable synthetic polymer.

#### *Register Box Ring (Bonnet) and Lid*

Register box ring and lid shall be of the same materials composition as the meter body or suitable synthetic polymer.

### *Sealing*

Each meter shall be supplied with 2.5mm diameter copper wire and other suitable type of seal system to discourage unauthorized opening or removal of the meter and also to indicate if such unauthorized act has been made. All elements of the sealing system, including length of wire, location of wire holes, etc, shall be suitable for covering all possible means of tampering, in particular, disturbance of the coupling nuts; of the accuracy adjustment device, if there is any; and of the register assembly. The seal shall be blank and suitable for sealing by a compression tool. The sealing elements shall be provided in such of way that after sealing, both before and after the water meter has correctly installed, there is no possibility of altering or dismantling the meter without damaging the sealing elements.

### *Test Method and Equipment*

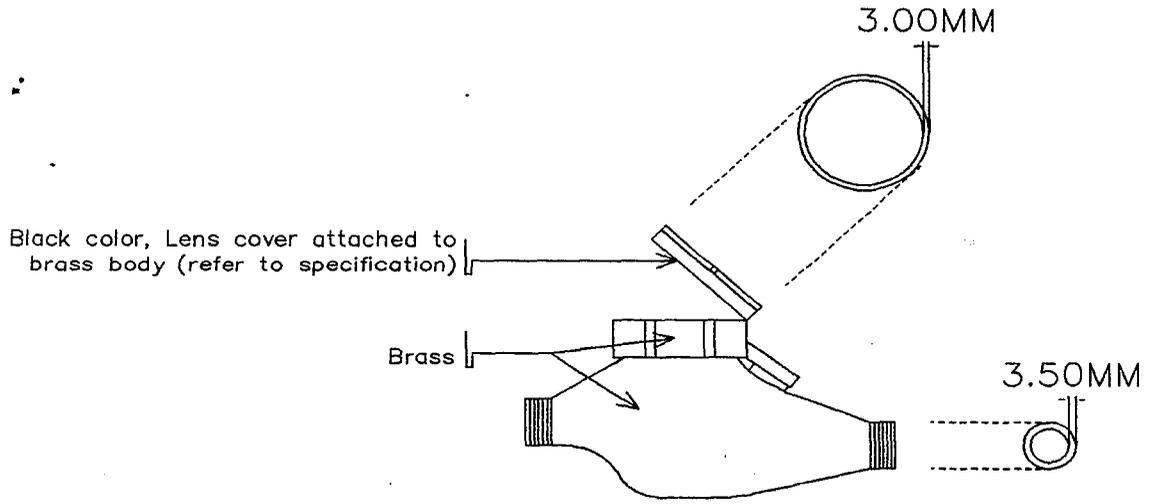
The methods and means to be employed in determining the compliance of water meter shall be in accordance with ISO 4064/3. (Test methods and equipment).The following test shall be conducted on meters in the automated calibration machine of Manila Water.

1. Accuracy
  - a.)  $\frac{1}{2}$ " $\emptyset$  Water Meters –
    - a1. Random testing of 5% of the total quantity picked by an authorized representative of the Procuring Entity.
    - a2. The amount of calibration testing fee equivalent to Two Hundred Fifty-Two Pesos Only (Php252.00) per unit shall be deducted to the remaining units
  - b.) 1" $\emptyset$  Water Meter - 100% of the total quantity
2. Physical/Dimensional, Lens Impact and Abrasion Test.
3. All sealed meters should passed pressure loss testing
4. Accelerated endurance test – submit certification from LWUA or Manila Water.
  - Endurance Test A (100,000 liters)
  - Endurance Test B

### *Warranty*

For the procurement of water meter, in order to assure that manufacturing defects shall be corrected by the supplier, a warranty period of two (2) years shall be imposed upon acceptance by the Procuring Entity of the full delivery. Provided however, that the supplies delivered are free from patent and latent defects and all the conditions imposed under the contract have been fully met.

**Drawing**



**Angle valve w/ lock wing**

