BAYLAN Watermeter BTB-05 Portable Test Bench

1. TEST BENCH INFORMATION

1.1. GENERAL

This test device is used for determination of error curve of watermeter without remove watermeter from water line system. Error curve of the watermeter is determined by calibrated, volumetric **BAYLAN** VK-6 type (Dry type, Q3: 2,5m³/h - Q3/Q1:200, DN20 - 110mm) watermeter. Maximum flowrate of the device is 3,125m³/h. DN15 or DN20 type of watermeter can be controlled by this test device. **Results of the test are for references purposes only.**

1.2. MAIN PART OF DEVICE

Inlet, Outlet Valve

Inlet, Outlet Line

Etalon Watermeter

Protection Case

1.1.1. Inlet, Outlet Line

Inlet line must be connected to tap of home or office. Outlet line is evacuate part of test bench and it must be connected to bathtub

1.1.2. Inlet, Outlet Valve

After you connect the device to the waterline system, valve is used to control water intake or output.

1.1.3. Etalon Watermeter

Etalon watermeter is used to determine error curve of connected watermeter. This watermeter is **BAYLAN** brand, VK-6 dry type (Q3: 2,5m³/h - Q3/Q1:200, DN20 - 110mm) volumetric. Calibration certificate is inside of device.

1.1.4. Protection Case

It is used to protect device from external damages. There is a etalon watermeter, calibration certificate, user manual and apparatuses in the case.

2. TEST PROCEDURE

1) Close all valves and devices (faucets, dishwashers, washing machines, etc.).

2) Check the star pointer of watermeter, which is connected to waterline.

3) Check the system again in case of rotating star pointer of watermeter although all valves and devices are closed. If it rotates anyway, there must be leakage at the system. If star pointer doesn't rotate, connect inlet line to the water system like tap.

4) Connect outline to bathtub.

5) Open inlet and outlet valve, the flow of water through the device is provided.

6) The flow of water is provided for 3-5 minutes. When there is no air in the system, close outlet valve.

7) Write first value of etalon watermeter and the watermeter to be tested.

8) Open outlet valve. Let the water pass through watermeter until 50lt.

9) After desired volume of watermeter, close outlet valve.

10) Write last value of etalon watermeter and the watermeter to be tested.

11) Close valve of tap and inlet line.

12) Let the water inside of the device discharge from system.

13) The error of watermeter, which is on the waterline, can be calculated by comparing error of each watermeter. Error of etalon watermeter is %0.

3. CALCULATION

V_{first} = First value of etalon watermeter

V_{last} = Last value of etalon watermeter

V_{volume} = Volume differences of first and last value of watermeter.

$$V_{Volume} = V_{Last} - V_{First}$$

S_{first} = First value of watermeter on the waterline

S_{last} = Last value of watermeter on the waterline

S_{volume} = Volume differences of first and last value of watermeter on the waterline

$$S_{volume} = S_{last} - S_{first}$$

Error = Error of watermeter on the waterline (Error limit of watermeter ±4 %)

$$(S_{volume} - V_{volume}) / S_{volume} \times 100 = Error \%$$

Example:
First value of volumetric etalon watermeter is 297,60 and last value is 247,60. First value of watermeter on the waterline 191,30 and last value is 146,20. According to this data, what is error of watermeter on the waterline?
V_{volume} = 297,60 - 247,60 =50,00 lt
S_{volume} = 191,30 – 146,20 = 45,10 lt
Error % = ((45,10-50,00) / 45,10) x 100 = -9,8 %

Error is -9,8%, and it is not between ±4. So that watermeter does not work properly.