# INSTRUCTION MANUAL FOR FLOWMETERS SERIES FTV-200

## 1. INSTRUMENT DESCRIPTION

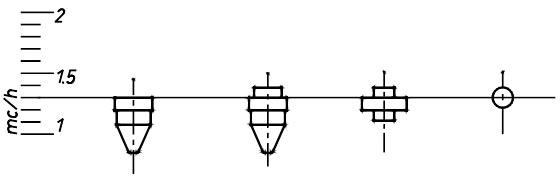
Variable-area, glass tube flowmeters for small and large liquid and gas flow rates.
Suitable for vertical installation with rising flow.
Can be fitted with alarm contacts for minimum and/or maximum flow rate.

## 2. MODEL IDENTIFICATION

The instrument is identified by means of the model code.
See the catalogue list for full details of the model code.

## 3. OPERATING PRINCIPLE

The flowmeter uses the variable area principle.
It consists of a tapered tube with a free float inside.
There is a scale outside this tube letting one read the flow rate of the fluid at the line shown in the figure on the right.

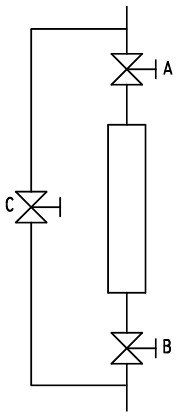



## 4. INSTALLATION

INSTALLATION IN THE PLANT
Before installing the flowmeter, make sure that the instrument and level switch connections are compatible.
The flowmeter must be fitted in a perfectly vertical position, between perfectly aligned piping at a controlled distance to avoid mechanical stress on the instruments.
In the case of threaded flowmeters, do not force the threaded part (use a sealing agent such as PTFE tape).
Remove the rod used to secure the float in position during transit.

## 5. COMMISSIONING

In the case of a new plant, we recommend extracting the float and then washing the piping thoroughly.
START-UP
- All valves must be closed;
- Slowly open valve (C) to balance the upstream/downstream pressure;
- Slowly open valve (A) until fully open;
- Slowly open valve (B) until fully open;
- Close valve (C) tightly.




If valves (A) and (B) are also used to adjust the flow rate, remember that valve (A) should be used for liquids and valve (B) for gases

**6. CALIBRATION**

The instrument has been calibrated before leaving the factory and so requires no further calibration on installation.
If alarm contacts are used, these should be adjusted to the set value during the installation of the instrument.

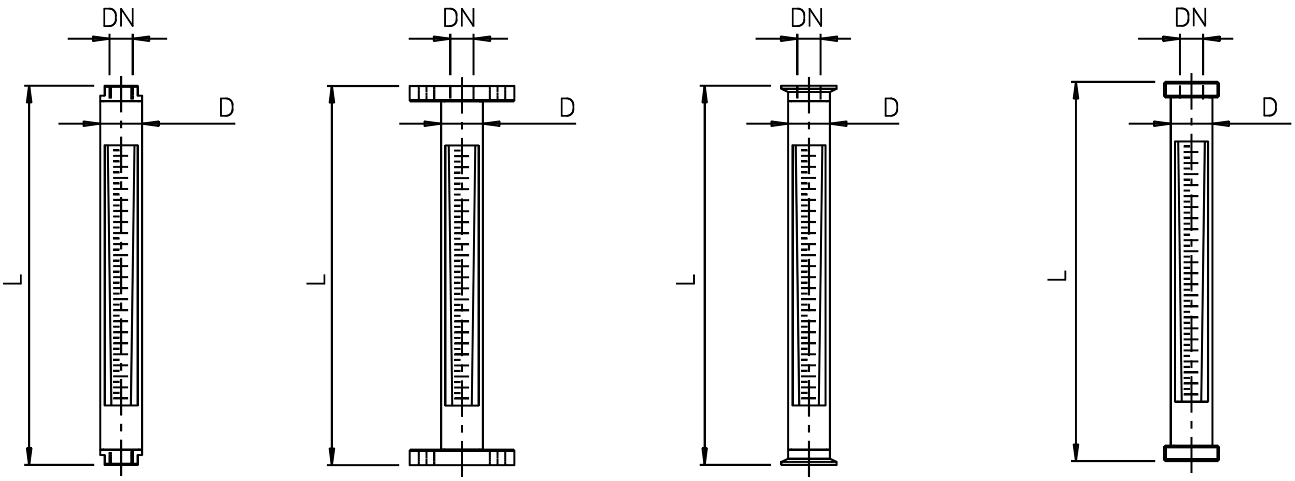
**7. MAINTENANCE**

We recommend cleaning the measuring tube and the float on a regular basis in the case of flowmeters used to measure fluids that tend to leave deposits.

-Make sure that the instrument has been bypassed and that any liquid inside has been drained;
-Remove dowels (5) fixing the heads;
-Remove heads (1), including flat spacers (2) and O-ring (3);
-Extract measuring tube (7), including stops (4) and float (8) (ALWAYS EXTRACT THE FLOAT FROM THE TOP);
-Check the state of gaskets (3) as if these are worn, fluids could leak from the flowmeter;
-Clean the tube and the float with rags or a soft brush;
-Visually check the float and the inside of the tube to make sure that the fluid has not corroded or eroded these. If this is the case, the precision of the instrument will be affected and the flowmeter will eventually become damaged.

If there are damaged parts, replace these immediately: contact our customer service centre for the relevant spare parts.
After cleaning and replacing any damaged parts, reassemble the flowmeter repeating the above steps in the reverse order.
Follow the steps at paragraph (5) COMMISSIONING above to return the plant to normal operation.

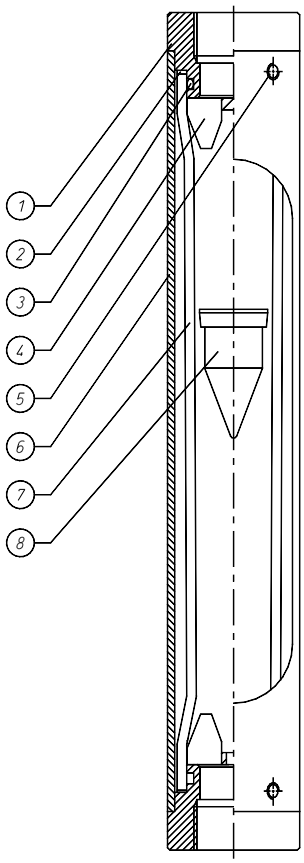
**8. DRAWINGS OF BODY WITH DIMENSIONS**




| model | D | Threated | | Flanged | | | Tri-Clamp | | Threated | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | DN | L | DN | | L | DN | L | DN | L |
| | (mm) | | (mm) | UNI - ANSI | | (mm) | | (mm) | DIN 11851 | (mm) |
| FTV 210 | 38 | ½” | 344 | 15 | ½” | 344 | 1” | 344 | 20 | 344 |
| FTV 215 | 38 | ½” | 344 | 15 | ½” | 344 | 1” | 344 | 20 | 344 |
| FTV 225 | 55 | 1” | 348 | 25 | 1” | 348 | 1” | 348 | 25 | 376 |
| FTV 240 | 70 | 1”1/2 | 370 | 40 | 1”1/2 | 370 | 1”1/2 | 370 | 40 | 386 |
| FTV 250 | 90 | 2” | 380 | 50 | 2” | 380 | 2” | 380 | 50 | 386 |

**9. RECOMMENDED SPARE PARTS (*)**

| POS | NAME |
|---|---|
| 1 | head |
| 2 | flat spacer |
| (*) 3 | O-ring gasket |
| 4 | stop |
| 5 | dowel |
| 6 | body |
| (*) 7 | glass tube |
| 8 | float |




**N.B.:**When ordering spare parts, always indicate the instrument serial number.
This can be found on the ratings plate on the body of the instrument and has 5 digits preceded by the letter “F” (e.g.: F45678).

**10. TROUBLE-SHOOTING**

FTV-200 flowmeters are not normally subject to malfunctions.
-Flowmeter fails to measure the flow correctly: check the tube and the float;
-Liquid leaks from the ring nut: check the state of the gaskets
All these controls are carried out as explained at paragraph (7) MAINTENANCE above.
Contact our customer service centre if the problem persists or a problem arises that has not been dealt with here.

**11. SCRAPPING**

Once the instruments have reached the end of their working life, they should be sent for scrapping in accordance with prevailing regulations.
When disposing of these, pay special attention to the polymers, resins and rubber used in their construction.
Metal components may be recycled after removing the gaskets, special coverings as requested by the customer or other plastic components.

**12. WARRANTY**

All FTV-200 flowmeters are guaranteed against manufacturer defects for a period of 12 months from the date of shipment.

In the event of a malfunction, if the defective part is returned within the above-mentioned warranty period, OFFICINE OROBICHE undertakes to replace any damaged parts under warranty (excluding transport costs), provided that the defect is not the result of the improper use of the instrument.

OFFICINE OROBICHE may not be held liable for any improper use of its products where these are used for ends other than those indicated in the specifications forming part of the order. No claims for damages will be accepted in the case of improper use.

Damages and/or expenses, whether direct or indirect, arising from improper installation or use of the instrument shall not be attributable or debited to OFFICINE OROBICHE under any circumstance.

The instrument may be used for a maximum period of 10 years from the date of delivery.

After said period, the customer has two alternatives:

1) Replace the instrument with a new one.
2) Have the instrument overhauled by OFFICINE OROBICHE or an expert technician, who assumes full liability for the future use of the instrument.

**HOW TO RETURN INSTRUMENTS**

Any returned instruments must be accompanied by a sheet indicating:

1) The name of the customer
2) A description of the material
3) Details of the fault
4) Process data
5) Liquids with which the instrument has come into contact

The returned instrument must be perfectly clean, free of dust and deposits; otherwise, OFFICINE OROBICHE may reserve the right to refuse to carry out the required maintenance and return the item “as found” to the customer.

**FINAL NOTES**

Every instrument is supplied fully assembled with all the accessories requested by the customer.

Only in exceptional cases will the various components be supplied separately.

Accessories such as by-pass and/or pressure regulating valves are supplied with the instrument, but are not actually fitted.

We therefore recommend that the customer inspects the delivery on arrival and immediately notifies OFFICINE OROBICHE of any discrepancies.

**N.B.** IN CASES WHEN THE INSTRUMENTS ARE MEANT TO BE USED IN AREAS FEATURING POTENTIALLY EXPLOSIVE ATHMOSPHERES, THE USER SHALL COMPLY WITH THE **ADDITIONAL SAFETY INSTRUCTIONS** ATTACHED TO THE STANDARD ONES.