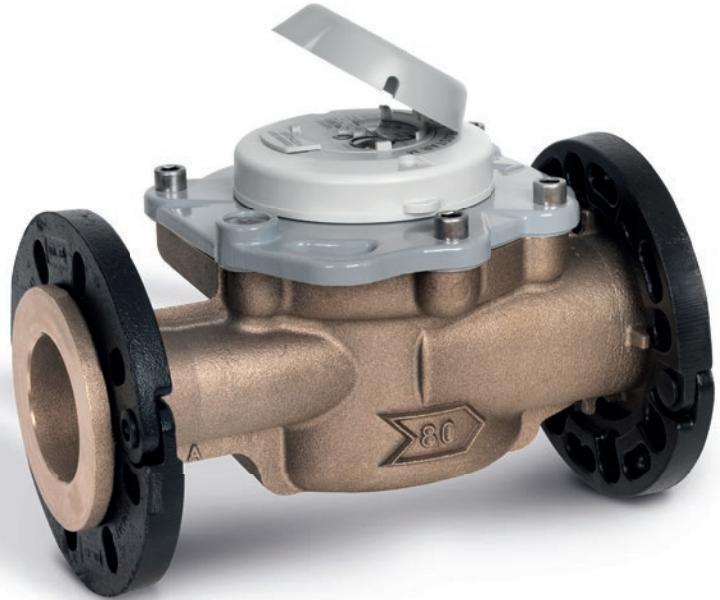




# Flostar M

Designed to meet the advanced needs of water utilities in large revenue collection applications

Engineered for reliability and built upon 20 years of industry-leading design, Itron's Flostar M is the best choice for drinking water metering in commercial and industrial applications.

## FEATURES AND BENEFITS

- » Low flow accuracy
- » Peak flow capacity
- » Highly engineered materials

### Wide Measuring Range

Flostar M is a single jet meter available in sizes from DN 40 to 150.

Its metrological performances far exceed ISO/IEC Class C standards.

Its low flow accuracy range combined with significant peak flow capacity ensure complete and efficient measurement whatever the faced flow-rates.

### Reliability

Flostar M features a direct magnetic transmission between the turbine and the register without any intermediate gearing in the metered water.

This results in a very robust and reliable design able to withstand most types of potable water environments.

Ease of read in the toughest humid environments (ie: flooded pits) is secured by hermetically sealed IP68 register (copper can/mineral glass envelope).

### Simple and effective

Simple but highly engineered materials and design enable a very long durability and the best performances for water metering.

### Endurance & Peak Flow Resistance

Performance over time is a key requirement for efficient billing. Flostar M features a patented turbine ball pivoting enhancing endurance at low flow-rates. Hydrodynamic balance and turbine design bring resistance at high and peak flows.

- » Single jet Class C
- » Hermetically sealed register (copper/can/mineral glass envelope)
- » Patented ball pivot
- » Patented turbine levitation



Flostar M DN65



Flostar M indicator



Cyble RF fitted on Flostar M

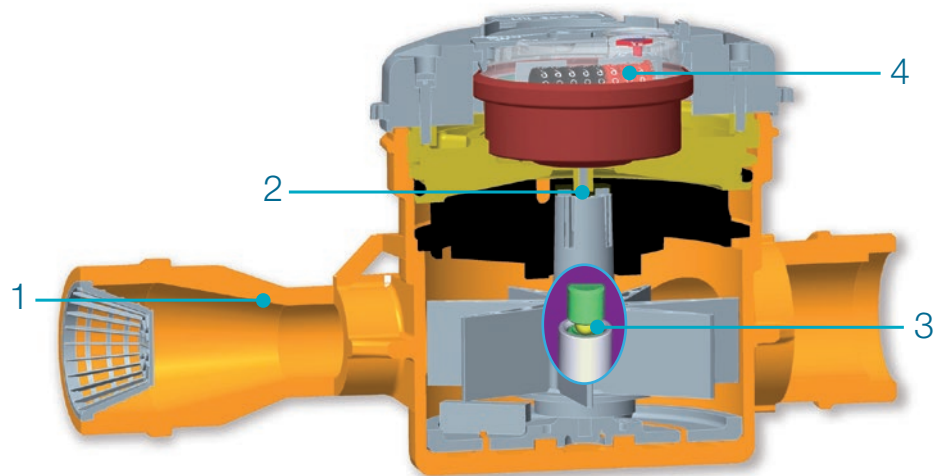
## WORKING PRINCIPLE

Flostar M is a single jet meter. The water jet is canalized by an injector before hitting the turbine. The single jet tapered injector straightens the flow profile. Its large bore area prevents meter overspeed by clogging.

The high precision design of the inlet **1** allows Flostar M to meet best accuracy without the need for any bypass or calibration vane adjustment system. The turbine movement is directly transmitted to the extra dry register through a magnetic coupling **2** without the need for any intermediate gearing in the metered water.

This allows Flostar M to conserve its initial accuracy over time, under the most demanding service conditions of potable water networks.

High quality material for the turbine bearings and patented ball pivot **3** design allows detection of leakages initially and over time regardless of the flow profiles. The hermetically sealed copper can/mineral glass envelope of the IP68 register **4** is safeguarding the read and integrity of the indicator in the toughest environments (flooded pits, mechanical tampering attempts, ...).



Flostar M DN40 3D Section

## COMMUNICATION : READY FOR SMART METERING

### Flostar M is supplied pre-equipped with Cyble Target

Allows communication and remote reading through:

- » Pulse output (Cyble Sensor)
- » M-Bus protocol (Cyble M-Bus)
- » Radio frequency wireless link (Cyble RF)

These Cyble modules allow the Flostar M meter to be connected with various associated systems like our supervision system WaterMind (see specific leaflet). They are particularly adapted to commercial and industrial applications where a need for frequent meter monitoring is expressed especially in hard-to-read locations.

### Key Advantages of Cyble Technology

- » No need for additional investment on the meter to implement remote reading
- » Itron standardized meter interface, irrespective of meter technology and widely spread on Itron water meters range
- » Reliable electronic switching (no wear or bouncing)
- » Reverse flow management
- » Field proven technology with a 25 years experience
- » Not affected by magnetic tampering

## METROLOGICAL CHARACTERISTICS

### MID / ISO 4064-1:2005 / OIML R49 Approval Values

| MID Approval Certificate      |      |        |       |              |          |        |            |  |
|-------------------------------|------|--------|-------|--------------|----------|--------|------------|--|
| N° LNE 23699 and N° LNE 23702 |      |        |       |              |          |        |            |  |
| Nominal diameter (DN)         | mm   | 40     | 50    | 65           | 80       | 100    | 150        |  |
| Minimal flowrate (Q1)         | l/h  | ≥ 100* | ≥ 79* | ≥ 127*       | ≥ 157.5* | ≥ 250* | ≥ 254*     |  |
| Transition flowrate (Q2)      | l/h  | ≥ 160  | ≥ 127 | ≥ 203        | ≥ 252    | ≥ 400  | ≥ 406      |  |
| Permanent flow rate (Q3)      | m³/h | 16     | 25    | 40           | 63       | 100    | 160        |  |
| Overload flowrate (Q4)        | m³/h | 20     | 31.25 | 50           | 78.75    | 125    | 200        |  |
| Dynamic (Q3/Q1)               |      | ≤ 160  | ≤ 315 | ≤ 400        | ≤ 400    | ≤ 400  | ≤ 630      |  |
| Standard Ratio (Q3/Q1)        |      | 160    | 250   | 315          | 315      | 315    | 315        |  |
| Q2/Q1                         |      |        |       | 1.6          |          |        |            |  |
| Accuracy class                |      |        |       | 2            |          |        |            |  |
| Temperature class             | °C   |        |       | T50          |          |        | T30        |  |
| Maximum Admissible Pressure   | bar  |        |       | 16           |          |        | 20         |  |
| Orientation                   |      |        |       | Horizontal   |          |        | Horizontal |  |
| Indicating range              | m³   |        |       | 999999       |          |        | 9999999    |  |
| Verification scale interval   | L    |        |       | 0.2          |          |        | 2          |  |
| Climatic influence class      |      |        |       | +5°C ; +55°C |          |        | -          |  |

\* respectively with dynamics Q3/Q1



### Performance Values

| Nominal diameter (DN)                | mm     | 40   | 50 or 65   | 65 or 80   | 80 or 100 | 100      | 150 |
|--------------------------------------|--------|------|------------|------------|-----------|----------|-----|
|                                      | inches | 1" ½ | 2" or 2" ½ | 2" ½ or 3" | 3" or 4"  | 4" or 6" | 6"  |
| Starting flow*                       | l/h    | 22   | 32         | 35         | 50        | 70       | 90  |
| Accuracy ± 2% from*                  | l/h    | 65   | 80         | 120        | 180       | 280      | 300 |
| Accuracy ± 5% from*                  | l/h    | 45   | 60         | 100        | 120       | 170      | 200 |
| Admissible peak flow (2 hrs. max.)** | m³/h   | 40   | 50         | 60         | 90        | 135      | 260 |
| Max. temperature for short period    | °C     |      |            | 60         |           |          |     |
| Max. admissible pressure             | bar    | 16   |            |            | 20        |          |     |
| Cycle HF pulse weight                | L      |      | 10         |            |           |          | 100 |

\* Average values - \*\* Without impact on accuracy performances.

### EEC/ISO Approval Values

| Nominal diameter (DN)       | mm           | 40            | 50 or 65   | 65 or 80   | 80 or 100 | 100      | 150  |
|-----------------------------|--------------|---------------|------------|------------|-----------|----------|------|
|                             | inches       | 1" ½          | 2" or 2" ½ | 2" ½ or 3" | 3" or 4"  | 4" or 6" | 6"   |
| EEC/ISO class approval      |              |               |            |            |           |          |      |
| Class C horizontal position |              |               |            |            |           |          |      |
| Nominal flow rate Qn        | m³/h         | 10            | 15         | 20         | 30        | 50       | 100  |
| Maximum flow rate Qmax      | m³/h         | 20            | 30         | 40         | 60        | 100      | 200  |
| Accuracy ± 2% class C Qt    | l/h          | 150           | 225        | 300        | 450       | 750      | 1500 |
| Accuracy ± 5% class C Qmin  | l/h          | 100           | 90         | 120        | 180       | 300      | 600  |
| Testing pressure            | bar          | 25            |            |            | 32        |          |      |
| Max. temperature            | °C           |               |            | 30         |           |          |      |
| Headloss group              | bar          | 1             |            | 0.6        |           |          | 1    |
| Min. scale interval         | L            |               |            | 0.2        |           |          | 2    |
| Indicating range            | DN 40 to 100 | 999 999.99 m³ |            |            |           |          |      |
|                             | DN 150       | 9999 999.9 m³ |            |            |           |          |      |
| EEC approval                | DN 40 to 100 | F06-G1546     |            |            |           |          |      |
| certificate                 | DN 150       | F-06-G-219    |            |            |           |          |      |

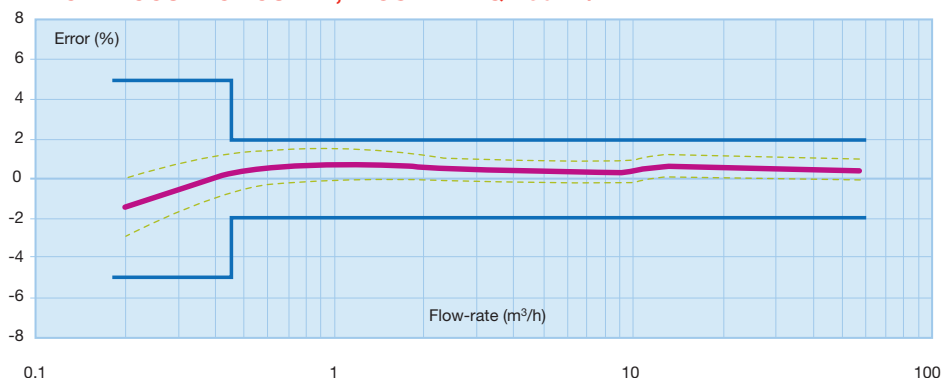
\* DN 65, 80 and 100 approved in class B other positions.

### Mobile Flanges

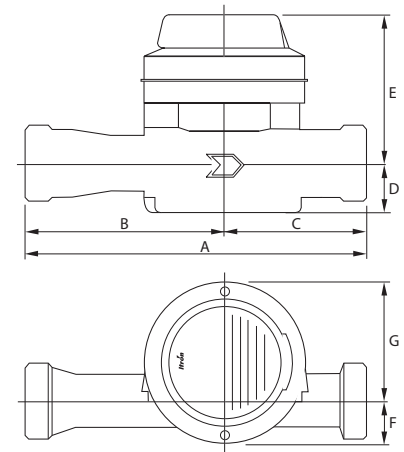
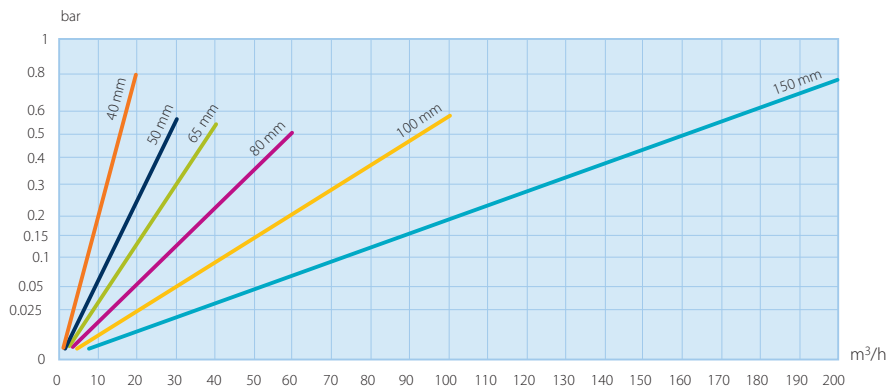
Flostar M from DN65 to DN 150 are equipped with mobile flanges allowing easy installation in a horizontal position.



### TYPICAL ACCURACY CURVE, FLOSTAR M QN 30 M³/H



## HEAD LOSS

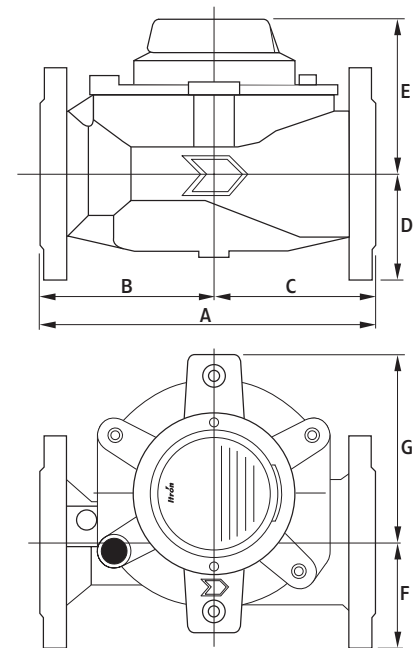


DN 40 and 50 (threaded)

## DIMENSIONS

| Nominal diameter (DN) mm |        | 40     | 50         | 50                     | 65                                                                        | 80  | 100  | 150  |
|--------------------------|--------|--------|------------|------------------------|---------------------------------------------------------------------------|-----|------|------|
| Meter connections        |        | G 2" B | G 2" 1/2 B | Flanges<br>ISO PN10/16 | Mobile flanges<br>compatible with major standards (ISO / DIN / ANSI / BS) |     |      |      |
| A (length)               | ISO mm | 300    | 300        | 300                    | 300                                                                       | 350 | 350  | 450* |
|                          | DIN mm | -      | 270        | 270                    | 300                                                                       | 300 | 360  | -    |
| B                        | mm     | 175    | 175        | 175                    | 180                                                                       | 200 | 184  | 240  |
| C                        | mm     | 125    | 125        | 125                    | 120                                                                       | 150 | 166  | 210  |
| D                        | mm     | 45     | 48         | 83                     | 92                                                                        | 100 | 110  | 144  |
| E                        | mm     | 133    | 130        | 130                    | 129                                                                       | 135 | 148  | 173  |
| F                        | mm     | 40     | 40         | 83                     | 92                                                                        | 100 | 110  | 144  |
| G                        | mm     | 104    | 104        | 104                    | 118                                                                       | 171 | 198  | 236  |
| Weight                   | Kg     | 5.7    | 6          | 10                     | 17                                                                        | 21  | 31.5 | 62.1 |

\* Additional sleeve DN 150 length 50 mm available.



DN 50 upto 150 (flanged)

## INSTALLATION REQUIREMENTS

- » Flostar M should be installed in the horizontal position with totalizer facing up for optimum performances.
- » Installation of a strainer upstream of the meter is recommended to protect the hydraulics from water-borne particles and debris. Please consult Itron's strainer brochure.
  - Flostar M DN 40 is supplied as standard with a strainer and can be fitted with standard non return valve on request).
- » Flostar M is not sensitive to flow disturbers (sensitivity class U0D0)

## Easy sizing of the meter

Flostar M DN50, DN65 and DN80 can be supplied with bigger flanges and lengths to facilitate meter sizing to the real usage flow rates.



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For more information, contact your local sales representative or agency:

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