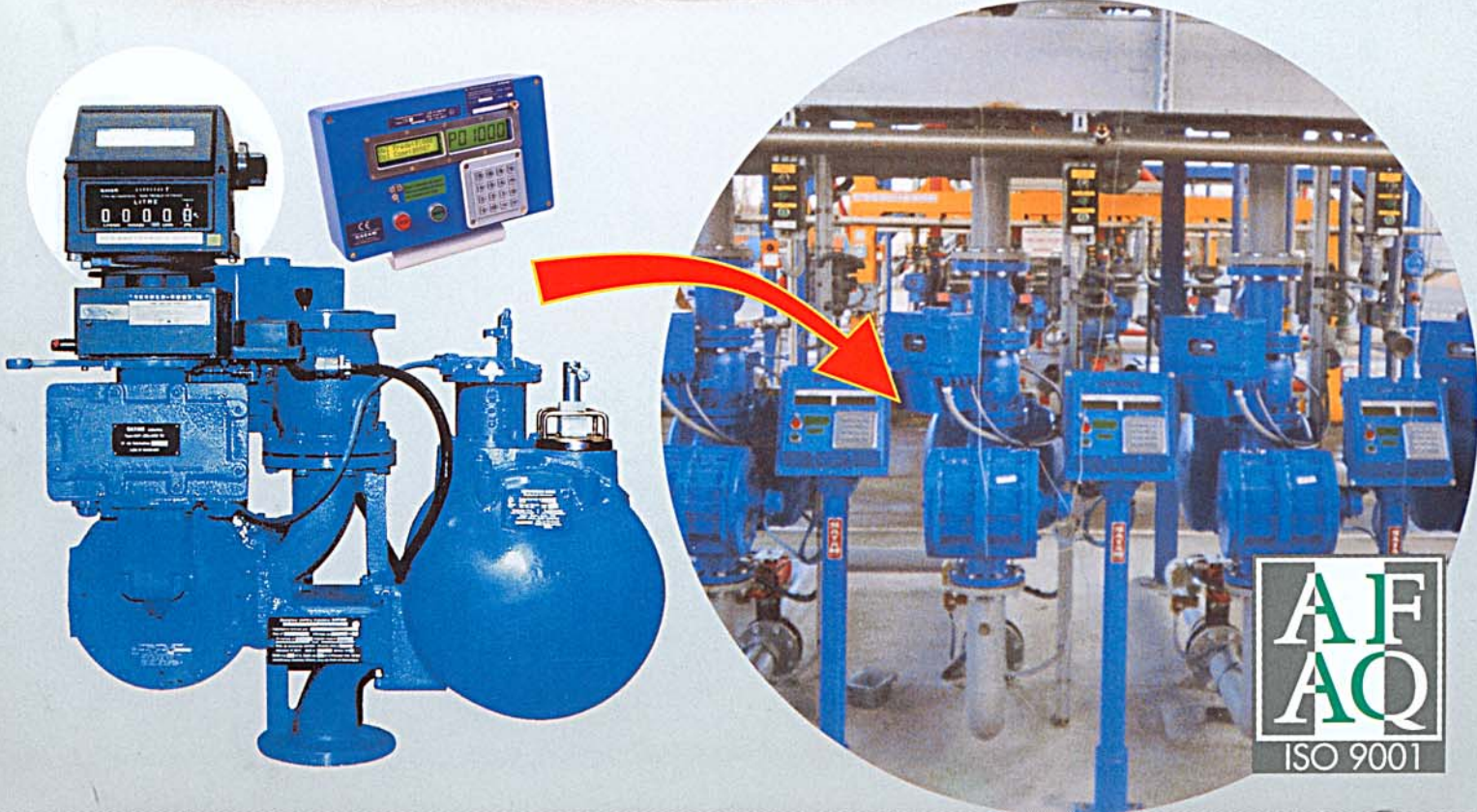


POSITIVE DISPLACEMENT METERS





with mechanical register
+ manifold



with electronic register
+ manifold

APPLICATIONS :

- Oil Depots
- Tank trucks distribution
- Airports : Aircraft refuellers
- Army : depot reception or loading trucks
- Administration (Railway companies, Public transport)
- Ports: boats / barges
- Mines: loading truck fleets
- Private Oil Transport Companies

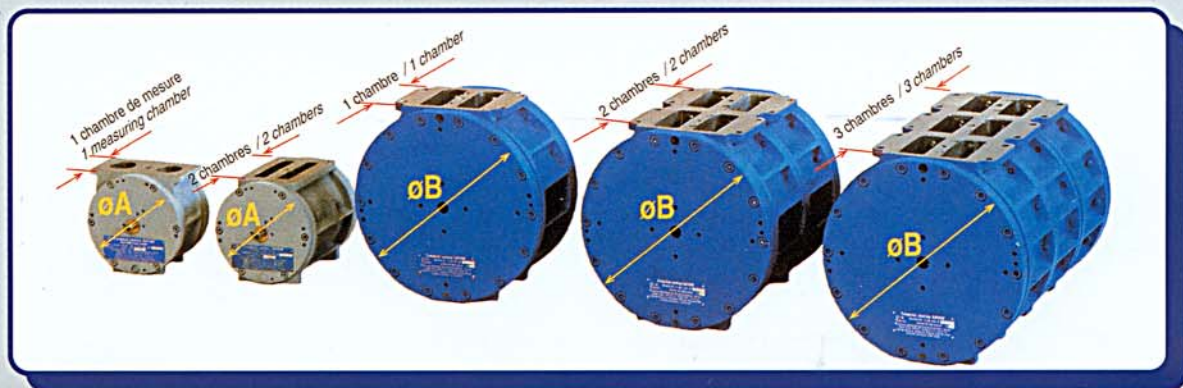
ADVANTAGES :

SATAM meters are Positive Displacement type meters. Their great efficiency has earned them a world-wide reputation :

- Special design featuring a meter manifold in line and a separate measuring chamber. This protects the measuring chamber from any eventual stress and strain from the installation piping.
- High accuracy over a wide range of flow rates, superior by 1 to 10 to Weights and Measures requirements.
- Very low repeatability error, less than 0.04%
- Low head loss : 0.5 bar maxi (0.3 bar for the ZC17-24 and 48 models)
- Exceptional accuracy over time, the accuracy curve of the meters hardly varying over a long period of use.
- Service and maintenance simplified by the use of many identical and interchangeable parts.
- Simplicity of design, the only moving parts being the 2 sets of blades and the rotor. This keeps maintenance costs to a minimum.
- A wide range of accessories can be used to build metering units specially adapted to customer requirements.

MEASURING CHAMBER :

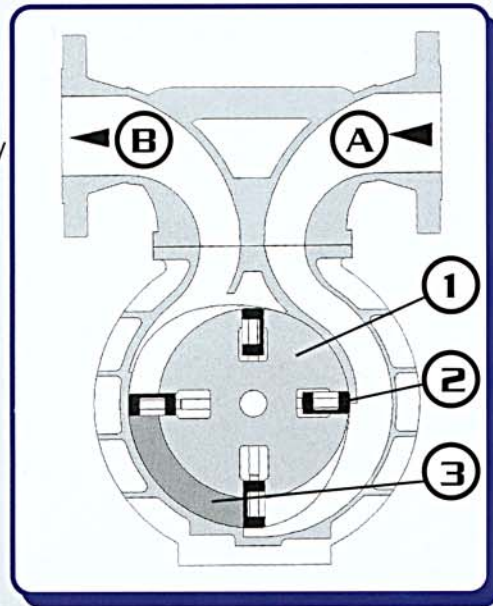
Thanks to its advanced technical design, SATAM is able to cover the entire range of flow rates, from 20 l/mn (5 USGPM) to 4200 l/mn (1100 USGPM), by the simple addition of measuring chambers.



OPERATING PRINCIPLE

The product enters the measuring chamber at (A) following the direction of the arrows. The rotor and blades assembly (1 — 2) is set in motion by the pressure of the liquid on blades.

A certain amount of liquid (3) is held between two blades, measured and then directed towards the discharge manifold (B). The volume of liquid measured at each rotation is therefore equal to 4 times the measured quantity (3).



Accuracy is provided by the extremely small clearance between the different elements of the meter.

The smooth curves of the meter pieces provide a steady, non-fluctuating flow, resulting in low head loss.

In mechanical version, an extended rotor shaft transmits its movement to the meter head using a calibrating device. The mechanism of the meter adjustment is stepless.

MECHANICAL CALIBRATING MECHANISM :

All the meters in the SATAM range are equipped with a Continuous adjustment calibrating mechanism. All meters are tested in the factory before delivery to the customer. This very accurate mechanism is based on the principle of differentials. By means of an calibration screw we can adjust as follows :

- on ZC.17.12 Meters :
1 notch = 0.025% (adjustment range : 4% maximum)
- on ZC.17.24/24 and ZC.17.24/48 Meters :
1 notch = 0.025% (adjustment range : 4% maximum)
- on ZC.17.80/80, ZC.17.80/150 and ZC.17.80/250 Meters :
1 round = 0.1% (adjustment range 1.2% maximum)

MATERIALS :

| | |
|-----------------|--|
| Manifold : | Steel or Aluminium |
| Body : | Ni-Resist cast iron (Aluminium for 12m ³ /h) |
| Covers : | Steel kanigen |
| Rotor : | Aluminium |
| Blades : | Carbon |
| Bearings : | Stainless steel |
| Seals/gaskets : | Viton |

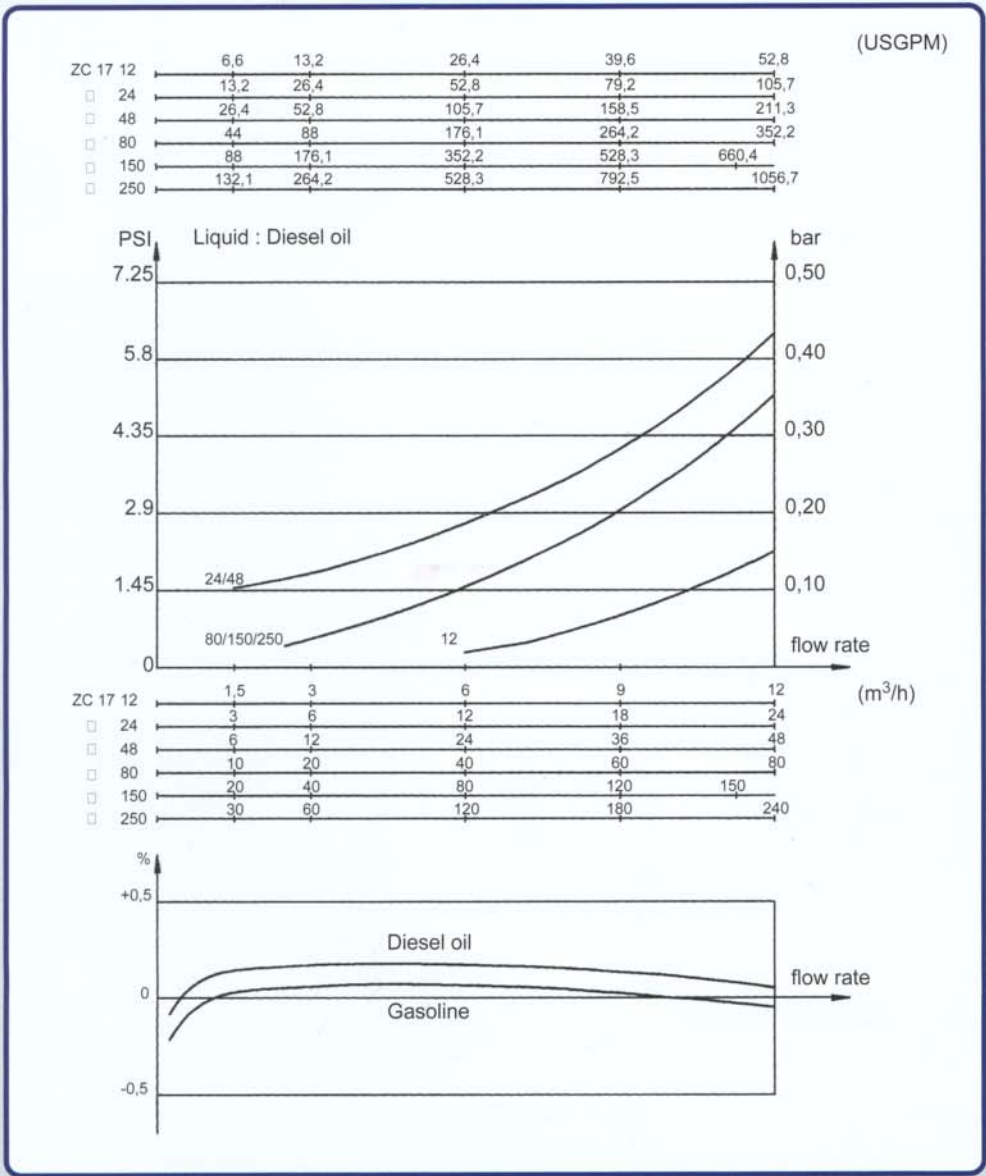
ACCESSORIES :

In the standard version, SATAM Meters are supplied with manifold and Register.

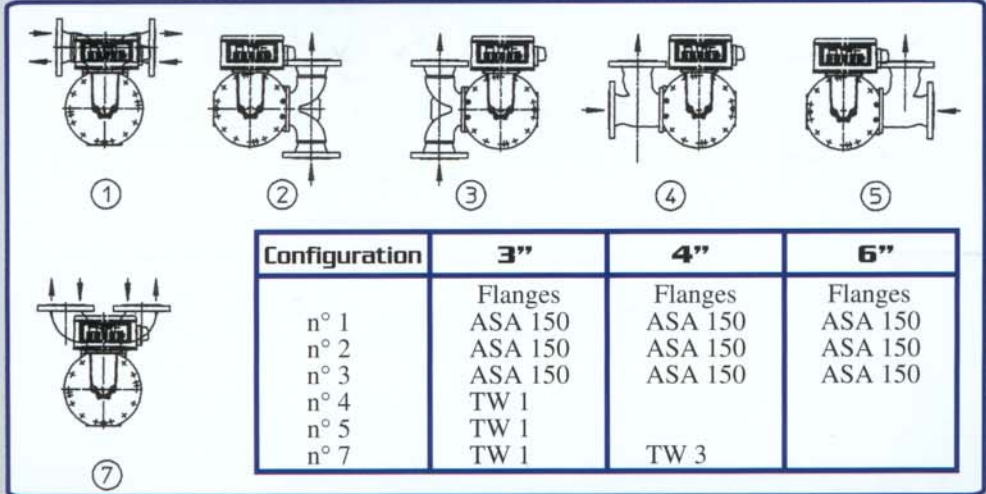
A wide range of accessories can be supplied with the meters :

- Preset Counters, with mechanical or electrical preset valve.
- Ticket Printers
- Rate of flow Indicators
- Pulse Transmitters
- Flow Governors
- Temperature compensation with correction volume
- Additive Injectors (3", 4", 6" meters)
- Strainers
- Air Eliminators or Air Separators

ACCURACY AND HEAD LOSS :



POSSIBLE CONFIGURATIONS (3", 4" and 6" Meters) :





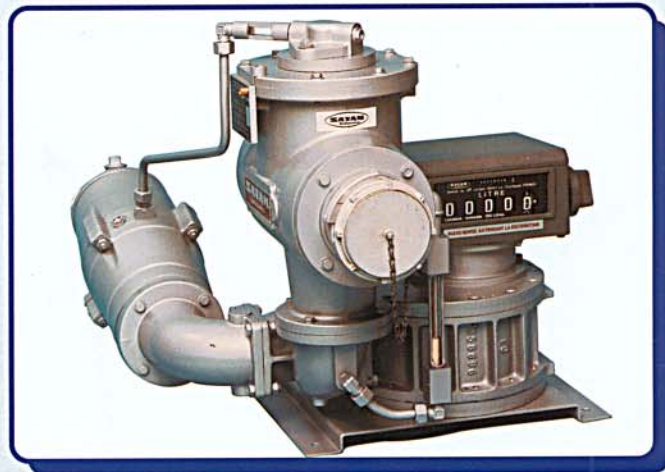
ZC 17-80 + Preset



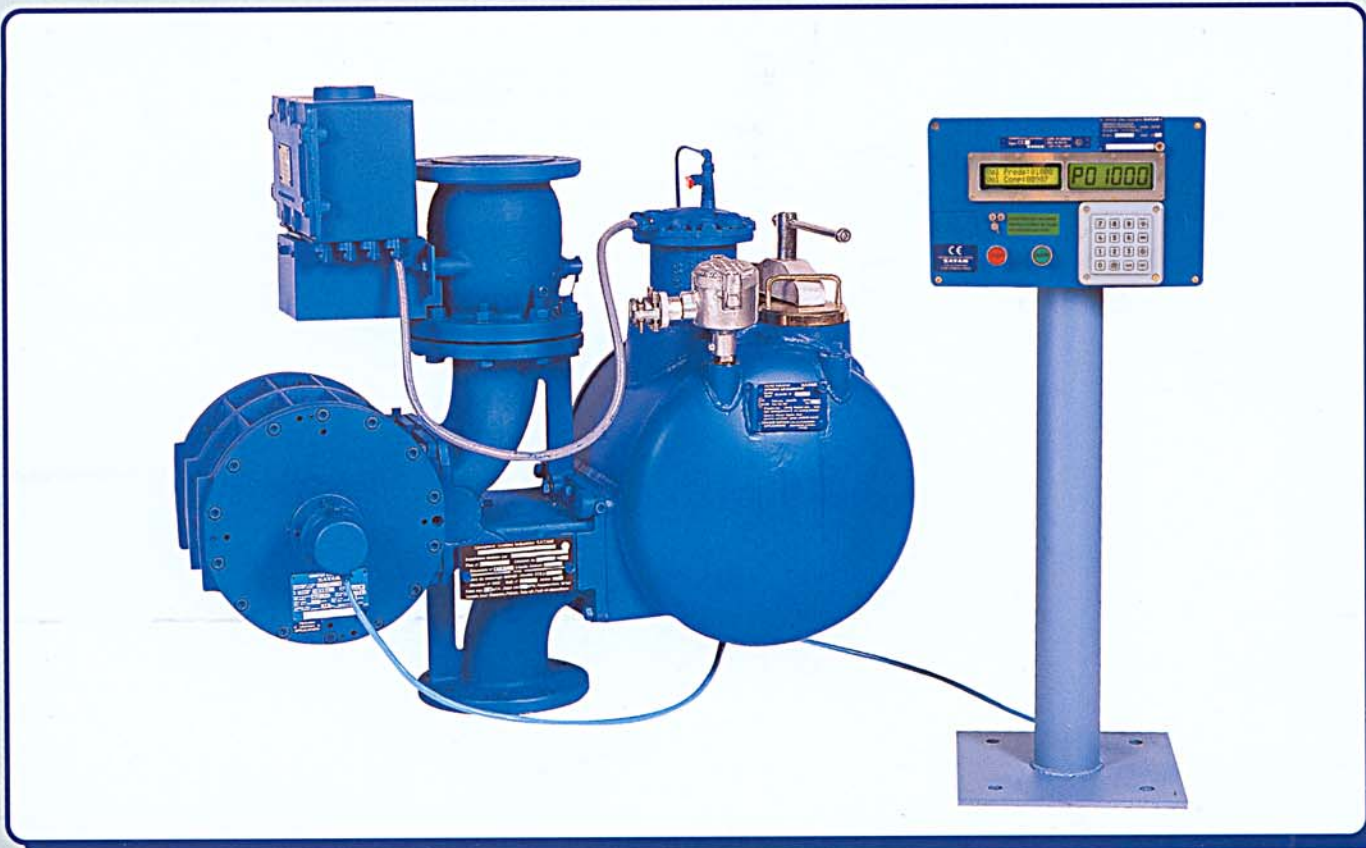
ZC 17-24 + Preset



EMS 48 for distribution from tank truck



ZCE 11 for unloading tank truck



ZCE 5 - 150 for loading tank truck

Dimensions and Technical data

| | | ZC 17 12 | ZC 17 24 | ZC 17 48 | ZC 17 80 | ZC 17 150 | ZC 17 250 |
|----------------------------|--------------------|---|-------------|-------------|----------------------------------|--------------|--------------|
| Flanges | | FLANGES SATAM SUPPLIED WITH COUNTER FLANGES (60 mm) | | | ASA 150 RF - SF (ANSI B 16-5) | | |
| Size | Inches | 2" | 2" | 2" | 3" | 4" | 6" |
| Volume per cycle | Litres | 0,33 | 0,40 | 0,80 | 2,27 | 4,54 | 6,82 |
| | US Gallons | 0,08 | 0,08 | 0,17 | 0,5 | 1 | 1,5 |
| Counter graduation | Litres | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | Decalitres | | | | | | |
| Max. flow rate | m ³ /h | 12 | 24 | 48 | 80 | 150 | 250 |
| | l/mn | 200 | 400 | 800 | 1333 | 2500 | 4166 |
| | USGPM | 53 | 105 | 210 | 360 | 660 | 1100 |
| | IMPGPM | 44 | 90 | 176 | 295 | 550 | 915 |
| Min. flow rate | m ³ /h | 1,2 | 2,4 | 4,8 | 8 | 15 | 25 |
| | l/mn | 20 | 40 | 80 | 133 | 250 | 416 |
| | USGPM | 5,3 | 10,5 | 21 | 36 | 66 | 110 |
| | IMPGPM | 4,4 | 9 | 17,6 | 29 | 55 | 91 |
| Max. operation pressure | Bar | 8 | 8 | 8 | 10 | 10 | 10 |
| | PSI | 116 | 120 | 120 | 150 | 150 | 150 |
| | Kg/cm ² | 8 | 8,3 | 8,3 | 10,5 | 10,5 | 10,5 |
| Working temperature range | | - 40° C (- 40° F) à + 60° C (+ 140° F) | | | | | |
| Viscosity max. | | 800 Cps / 3850 SSU | | | | | |
| Weight net | Kgs | 14 | 20 | 25 | 56 | 85 | 141 |
| | Lbs | 31 | 44 | 55 | 123 | 187 | 311 |
| Gross weight (sea packing) | Kgs | 32 | 38 | 43 | 95 | 124 | 180 |
| | Lbs | 70,5 | 84 | 95 | 209 | 273 | 397 |
| Dimensions : | | | | | | | |
| Between flanges | mm | 180 | 180 | 180 | 356 | 432 | 400 |
| | (inch) | (7) | (7) | (7) | (14) | (17) | (15,7) |
| Width | mm | 180 | 287 | 287 | 356 | 432 | 400 |
| | (inch) | (7) | (11,3) | (11,3) | (14) | (17) | (15,7) |
| Depth | mm | 215 | 235 | 269 | 370 | 497 | 675 |
| | (inch) | (8,5) | (9,3) | (10,6) | (14,6) | (19,6) | (26,6) |
| Height | mm | 221 | 406 | 406 | 405 | 405 | 568 |
| | (inch) | (8,7) | (16) | (16) | (16) | (16) | (22,4) |

Our address :

Distributed by :