



Consumer and
Corporate Affairs

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Standards

Normes

**NOTICE OF APPROVAL
AVIS D'APPROBATION**

S.WA - 831

Ottawa, October 18, 1973

SCHLUMBERGER-SANITARY METERING SYSTEMS FOR MILK

MANUFACTURER: Compteurs Schlumberger, Paris, France

DEVICES APPROVED: "Polyflu" oscillating piston type sanitary positive displacement meters and accessories, for use on milk and other liquid foods, meter model numbers as follows:

<u>MODEL NO.</u>	<u>SIZE</u>	<u>MIN. GPM</u>	<u>MAX. GPM</u>	<u>MAX. TEMP.</u>	<u>MAX. PRESSURE</u>
Nr 2	1½"	6	30	140°F	54 psig.
Nr 5	2"	22	110	140°F	45 psig.
Nr 7	3"	50	255	140°F	45 psig.

APPLICATION: The 2" meter, when installed with the necessary approved accessories in an approved configuration on a milk tanker truck, may be used for the measurement of milk picked-up from farm milk tanks.

The 2" and 3" meters, when permanently installed with the necessary approved accessories in an approved configuration, may be used for the measurement of milk unloaded from or loaded onto milk tanker trucks at milk processing plants.

DESCRIPTION: The oscillating piston is of the carbon composition type and operates in a vertical plane. A magnetic coupling transfers the movement of the piston to the register. The piston may be removed for cleaning purposes without disturbing the register. Meter registration is adjusted by change gears between the meter-body and the register proper.

The deaerator has a diametrically located liquid entrance and bottom outlet; the inlet to it is provided with a tube type filter. There is a conventional float-operated air release valve and in addition a large capacity solenoid-operated valve controlled by a float switch.

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At the beginning of a pick-up, the milk level is slightly below the centre of the deaerator sight glass, and the float-switch is open, resulting in the solenoid valve being open; the float-operated air release valve is also open. Under this condition, insufficient pressure builds up in the deaerator and meter to open the spring-loaded check valve, and no liquid flows. As air escapes from the deaerator, the milk rises and first the solenoid valve then the float-operated valve closes. Pressure then builds up in the deaerator and meter and opens the check valve. A timer in the motor circuit stops the pump if the milk level has not reached the float switch within 15 seconds after the pump is started.

At the end of the pick-up, the reverse of the sequence described takes place. The level of the milk in the sight glass should be very nearly the same at the beginning and end of a pick-up if the air release valves are operating correctly.

SPECIAL CONDITIONS FOR MILK PICK-UP METERS

- 1) Pumps, deaerators, and meters and piping shall be installed and connected in an approved configuration; drawings and photographs of approved configurations will be issued in revisions to this circular.
- 2) The pump suction line shall be transparent and shall not be greater than 1- $\frac{1}{2}$ " inside diameter nor 20 feet in length.
- 3) The pick-up hose should be connected to the pumps so that the pump is in effect, "sumped", to ensure that as the tank empties, air does not establish a path to the pump until the suction line is dry.
- 4) All pumps shall be of the positive displacement, lobed-impeller type, or other approved non-churning type.
- 5) The deaerator shall have a 3" (approx.) diameter sight glass at the normal operating liquid level, so that the constancy of the level can be observed.
- 6) There shall be a transparent section in the piping from the deaerator to the meter, to permit any air bubbles to be observed.
- 7) The vent line from the deaerator air release valves shall be transparent plastic tubing and shall discharge into an open receptacle.
- 8) All installations shall be equipped with an air detector when a suitable detector is available.
- 9) A pressure gauge shall be installed between the meter and the spring-loaded check valve, and it shall be marked to indicate the acceptable operating range (to be specified by the Standards Branch).

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- 10) The discharge piping from the check valve shall be conveniently removable so that a 2-inch Tygon line can be connected to deliver the measured milk to a test measure during meter inspections by Weights and Measures.
- 11) All meter registers shall read in gallons and tenths of a gallon, and shall be equipped with ticket printers printing to tenths of a gallon, with start and finish print.
- 12) Each piston for these meters shall have a serial number.
- 15) The meter and deaerator enclosure shall be maintained at all times above 35°F, so that the system shall not be adversely affected by winter temperatures; the enclosure shall be suitably heated and insulated.

SPECIAL MARKING FOR MILK PICK-UP METERS

On the deaerator there shall be mounted a plaque with the following instructions:

FOR ACCURATE MEASUREMENT

- 1) Add * gallons (required to fill system) to meter reading at first pick-up.
- 2) Coil hose with pump running so that the hose is drained completely.
- 3) Liquid level in the sight glass should be the same at the end of a delivery as at the start.
- 4) Do not pick up by meter reading from tanks in which the liquid swirls excessively when the tank empties or on which there is a leak at the connection.
- 5) Do not pick up less than 50 gallons.
- 6) Do not use a meter with a chipped piston.
- 7) Park so truck is reasonably level.

SPECIAL CONDITIONS FOR MILK RECEIVING METERS

- 1) Each meter, deaerator, pump, other components and piping shall be installed and connected in an approved physical configuration; drawings and photographs of approved configurations shall be issued as revisions to this circular.
- 2) The pump suction line shall be transparent and shall be the same size as the meter, not longer than 20 feet and shall be completely visible.
- 3) If a positive displacement pump is used, it shall be interlocked to stop automatically when the suction line runs dry.

* To be established and marked at original verification.

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- 4) The discharge line from the check valve shall have a conveniently removable section about 18" long, (followed by a valve) so that a 2½"-inch Tygon line can be connected to deliver the measured milk to a test measure during meter inspections by Weights and Measures.
- 5) All installations shall be equipped with an air detector when a suitable detector is available.
- 6) A pressure gauge shall be installed between the meter and the spring-loaded check valve, and it shall be marked to indicate the accepted operating range specified by the Standards Branch.
- 7) Prior to the first milk receipt on any day, the metering system shall be fully primed with milk (or water, where permissible) to ensure accurate measurement.

SPECIAL CONDITIONS FOR METERS ON OTHER LIQUIDS

- 1) Meters may only be used to measure liquids for which authorization has been granted by the Standards Branch.
- 2) The applicable "SPECIAL CONDITIONS" above shall apply.
- 3) All meters shall be verified with the liquid to be measured.

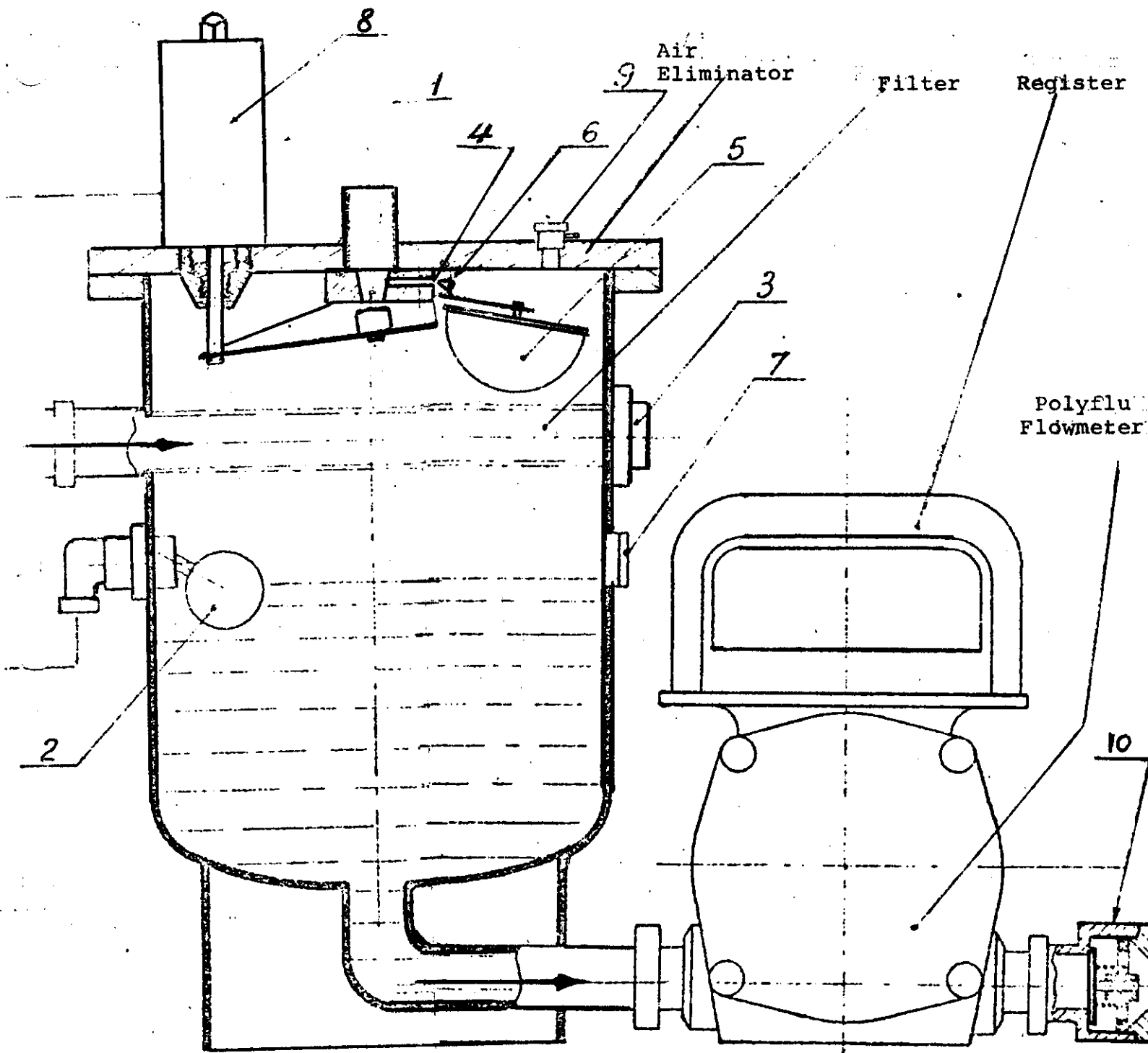
SEALING: On meters used on milk and other foodstuffs, the meter body shall not be sealed, to permit adequate cleaning of the metering elements.

TESTING: Special tests are to be conducted at the initial and subsequent inspections, as directed by the Standards Branch. All such tests shall be made with milk or other liquid to be measured in trade.

REFERENCES: G 1151-57/C406-786;
GL1151-57/C406-786

CONDITIONS OF APPROVAL: Approval is granted under the Weights and Measures Act, R.S.C. 1970, c.W-7, and Regulations thereunder (P.C. 6894) for use in Canada under the general conditions of P.C. 6894, and under any special conditions listed above.


R. W. MacLean
Director General
Consumer Standards Directorate



- 1. Air release valve
- 2. Float switch
- 3. Filter cover
- 4. Float for air release valve
- 5. Float controlled air release valve
- 6. Tapered plug
- 7. Sight glass
- 8. Solenoid for air release valve
- 9. Clean-in-place connection
- 10. Check valve (spring-loaded)

DIAGRAM BY SCHLUMBERGER