

**SPECIFICATION
FOR
LOCAL STANDARDS
OF
CAPACITY**

METAL DELIVERY MEASURES

(Automatic Pipettes)

In accordance with the provisions of section 4(2) of the Weights and Measures Act 1985, the Secretary of State hereby approves the material and form of local standards of capacity conforming with this specification.

This specification, together with 7313, supersedes SWM 267 (November 1976).

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METAL DELIVERY MEASURES (Automatic pipettes)

NOMINAL CAPACITIES

1 The local standard capacity measures specified shall have nominal capacities of:

<u>Imperial</u>		<u>Metric</u>
5 gallons		20 litres
10 “)		50 “)
20 “)	Preferred sizes	100 “) Preferred sizes
25 “		

MATERIALS

2 The measures shall be made of stainless steel or of mild steel, in which case the interior surface shall be coated with an epoxy resin lining to API Standard 1101.

GENERAL CONSTRUCTION

3 The measures shall be sufficiently robust to withstand normal usage and may be enclosed in a protecting stand.

4 The measures shall be in the form of a vertical cylinder connected by two conical sections to a neck and a sump. The base angle of each cone should be approximately 30°.

5 A measure constructed of mild steel shall have the top cone bolted to the cylindrical body for internal inspection. The joint shall be metal to metal and may incorporate an ‘O’ ring or other seal.

6 Measures shall be constructed so that no air is trapped when being filled and no water is retained when being drained.

7 Means shall be provided for determining the temperature of the measure and its contents.

8 An adjustment plunger, not exceeding 0.5% of the nominal volume, may be fitted.

9 The top datum shall consist of an overflow weir discharging into a transparent chamber fitted with a drain and an air vent. The top of the weir should be machined at right angles to the vertical axis and should be chamfered towards the bore.

10 The bottom datum shall be formed by two leakproof valves, an inlet valve and an outlet valve. The inlet and outlet pipes shall be angled to comply with 6.

CALIBRATION

11 Delivery measures shall be calibrated gravimetrically using water. The measure will be filled by opening the inlet valve until the water rises above the overflow weir. The inlet valve is then closed and the level of the water in the overflow chamber allowed to fall below the level of the weir. The outlet valve is then opened for a specified time to allow for full flow and drainage.

SEALING

12 All components or adjustments which are capable of altering the volume shall be capable of being sealed.

INSCRIPTIONS

13 The following inscriptions shall be marked on a plate, securely fastened to the measure or its support:

- (a) the name of the local authority
- (b) the nominal capacity
- (c) the reference temperature
- (d) the total drainage time
- (e) an identification number
- (f) the manufacturer's name
- (g) the year of manufacture

LIMITS OF ERROR

The permissible limits of error in the volume of water delivered by the measure at 20 °C after allowing the drainage time shall not exceed the amount specified in Regulations made under section 4(5) of the Weights and Measures Act 1985, as shown in Table 1.

TABLE 1

Nominal volume		Maximum weir diameter	Limits of error on capacity
Gallons	Litres		
5	20	12 mm) ± 0.02%
10	50	20 mm	
20)			
25)	100	20 mm	

