SPECIFICATION

FOR

WORKING STANDARDS

OF

CAPACITY

INTEGRATED MEASURE

In accordance with Section 5(5) of the Weights and Measures Act 1985, the Secretary of State hereby approves the material and form of working standards conforming to this Specification for use when testing measuring instruments used for dispensing liquid fuels. This Specification supersedes earlier versions and equipment complying with those versions may continue in use.

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Chief Executive
NWML

SPECIFICATION FOR WORKING STANDARDS OF CAPACITY

INTEGRATED MEASURE

DEFINITION

1 An integrated measure is a composite vessel made up of two components; a brim measure (defined by a weir) and a line measure. It is an amalgamation of the traditional checkpump strike measure and a measuring cylinder which would have been used separately to determine quantities in excess or deficiency.

NOMINAL CAPACITIES

2 The working standard shall have a nominal capacity of 100, 50, 20, 10, 5 or 2 litres only.

MATERIAL

3 The main body of the measure shall be made of fibre reinforced epoxy composite material or other material having an essentially zero linear thermal expansion coefficient. Handles and other fittings may be made of other appropriate materials.

GENERAL CONSTRUCTION

4 The measure shall have the following general features:

(a) the main body to be of circular cross-section which may be tapered. The strength of the vessel shall be adequate to resist deformation when filled with water;

(b) a conical or tapered upper portion to facilitate pouring out and drainage with a base designed to resist distortion when filled and to provide protection against damage in use and, optionally an inverted conical or tapered section above the neck to dissipate foaming and prevent spillage;

(c) optionally, a conical or tapered lower portion incorporating a ball valve to facilitate consistent, hands-free, discharge and drainage of the measure whilst in a vertical orientation;

(d) optionally, handles to facilitate carrying;

(e) optionally, horizontal arms or trunnions to facilitate suspending the measure from a transporting trolley or vehicle and to facilitate levelling the measure prior to use;

(f) an integrated measurement tube of glass or transparent plastics material of internal diameter not greater then the following:

Nominal volume (litres)	Maximum internal diameter of measurement tube (mm)
2	30
5	30
10	40
20	40
50	60
100	80

(g) a ball valve incorporated in the weir/transfer-tube connecting the top of the measurement tube to the neck of the main body.

5 The measure shall be sufficiently strong and robust to withstand normal usage with a minimum wall thickness of approximately 1 mm. The measure may have strengthening bands to minimise distortion when filled or being transported and may have a supporting framework to prevent the body of the measure, or any part of the measuring tube, coming into contact with the ground at any orientation.

6 The measure shall not leak.

7 The measure shall have a smooth interior surface.

8 No air shall be trapped on filling and minimal liquid retained on emptying.

9 The diameter of the neck at the point of take-off for the weir shall be not more than 60 mm.

10 To enhance the sensitivity of the neck the measure shall be provided with a level indicator and an adjustment mechanism whereby the measure can be set vertical;

11 The measure incorporates a calibration unit in the form of an adjustable plug, which may include a valve for drainage, at the bottom end of the measurement tube.

12 Means shall be provided to secure the calibration unit after adjustment.

13 The graduated scale alongside or marked on the measurement tube may be fixed or adjustable. Where it is adjustable, means shall be provided for sealing it in position after calibration.

14 The scale shall be of sufficient length to indicate the permitted limits of error for inspection.

15 Scale marks may be marked in millilitres (ml), in terms of percentage of nominal volume or both.

16 Optionally, more than one measure may be fitted into a transporting trolley or vehicle provided that the metrological aspects of each of the measures included are not impaired by the presence of the other(s).

INSCRIPTIONS

17 The following inscriptions shall be marked permanently, legibly and conspicuously on each measure:

The nominal volume;
IN [alternatively, To contain 2L (or 5L, 10L, 20L, 50L, 100L)];

A serial number;
The name of the Local Authority.

Additionally the name or trade mark of the manufacturer may be marked on the measure.

APPENDIX 1

18 These measures shall be tested for capacity from dry. Testing may be volumetric, by discharging water from a Local Standard or Standards, or gravimetric. In the latter case the procedure shall be broadly as given in the Local and Working Standards Capacity Measures and Testing Equipment Regulations using a suitable weighing machine. For the purposes of calibration the reference temperature shall be taken as 20°C.

19 Immediately before use these measures should be wetted out. This entails filling the measure with fuel from the dispenser under test and draining for the specified time. Recommended drainage times are:

Liquid of use	Drainage time (seconds)					
	2L	5L	10L	20L	50L	100L
Petroleum spirit	30	30	30	30	45	60
Diesel	45	45	45	45	60	90

The drainage time is counted from cessation of the main flow of liquid when emptying.

APPENDIX 2

20 Permitted limits of error

Nominal size	2L	5L	10L	20L	50L	100L
Permitted limit of error (mL)	2	5	10	20	50	100