

**SPECIFICATION  
FOR  
TESTING EQUIPMENT**

**DISPLACEMENT PLUNGERS**

In accordance with the provisions of section 5(5) of the Weights and Measures Act 1985, the Secretary of State hereby approves the material and form of testing equipment conforming with this specification for use in connection with the testing of capacity measures.

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**Department of Trade & Industry**

STD 4827

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## SPECIFICATION FOR DISPLACEMENT PLUNGERS

### DEFINITION OF CAPACITY

1 The capacity of a displacement plunger is the volume of water which it displaces at 20°C when immersed vertically into liquid up to the line which denotes the volume.

### MATERIAL

2 Displacement plungers shall be made from material which is rigid and stable in normal use, which resists corrosion and is not affected by the liquid in which it is to be immersed. Displacement plungers shall consist of a body and a stem. The stem may incorporate a lifting handle.

3 The body shall be a regular shape which does not permit the entrapment of air on immersion nor the retention of liquid on withdrawal from the liquid.

4 The line denoting the nominal volume may be formed by the conjunction of two surfaces or by an engraved line.

5 Lines shall be permanent, visible and of uniform thickness not exceeding 0.4 mm.

### INSCRIPTIONS

6 Displacement plungers shall have a serial number and a marking of nominal capacity, providing that such marking does not interfere with the use of the displacement plunger.

7 Alternatively, the markings may be on a label attached to the upper end of the stem, or marked on the box in which the displacement plunger is normally kept.

### LIMITS OF ERROR

8 The limits of error in the volume of water displaced by a plunger shall not exceed the limits of error of a working standard capacity measure of the same nominal volume as shown in Table I.

**TABLE I**

Nominal volume of displacement plunger	Permitted limit of error
not exceeding 2 ml	0.1 ml
not exceeding 25 ml	0.2 ml
not exceeding 50 ml	0.3 ml
not exceeding 100 ml	0.4 ml

not exceeding	125 ml	0.5 ml
not exceeding	150 ml	0.6 ml
not exceeding	175 ml	0.7 ml
not exceeding	250 ml	0.8 ml
not exceeding	500 ml	1.0 ml

### APPENDIX A

Notes on testing a displacement plunger.

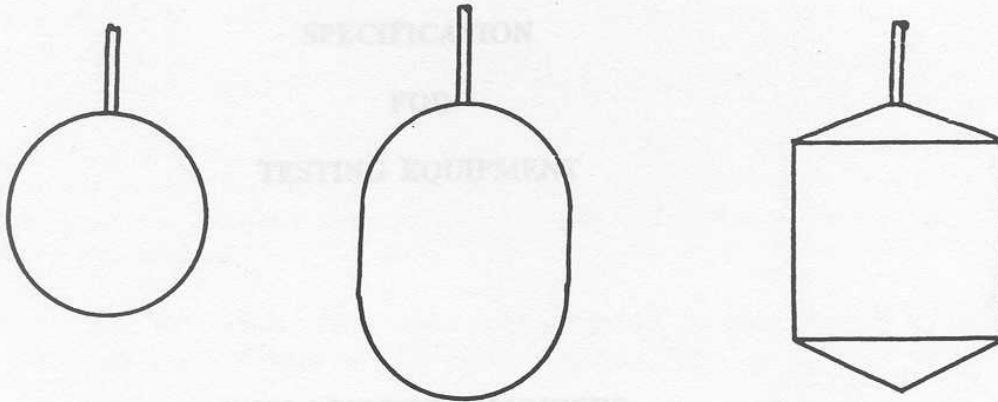
A displacement plunger shall be tested either:

- a. by measuring the hydrostatic upthrust when immersed in water of known density at 20 °C.
- or
- b. by measuring the volume of water at 20 °C displaced from a suitable container. The volume of water displaced may be determined gravimetrically or volumetrically.

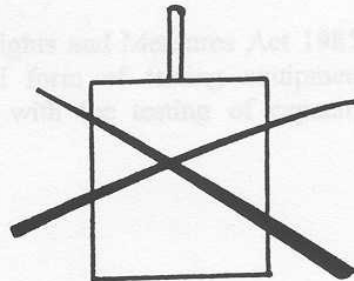


APPENDIX B

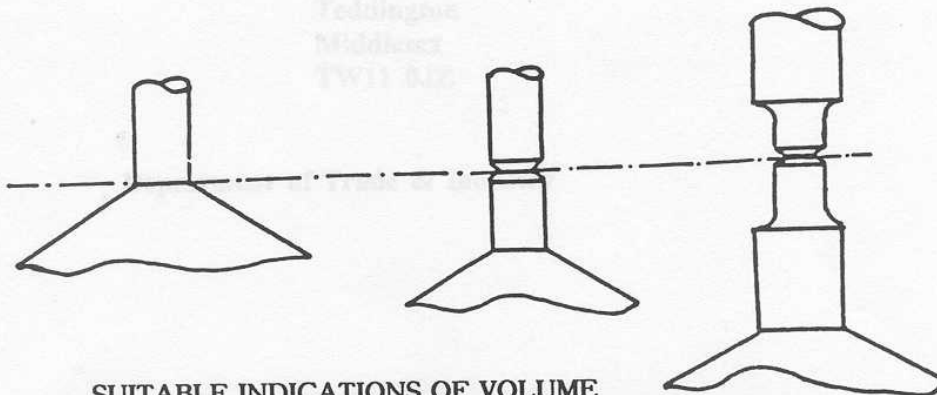
DESIGNS OF DISPLACEMENT PLUNGERS



SUITABLE BODY SHAPES



UNSUITABLE BODY SHAPE



SUITABLE INDICATIONS OF VOLUME