

tape/weight combination may be significantly different from that for a working tape/weight combination. Consequently the verification should normally be performed in an environment where temperature and tension can be controlled. Verification checks involving comparisons made in the open air are not recommended; see also 4.2.1 and 9.2.1.

5.2.8 Winding-Frames

Winding-frames should be made of brass with a suitable handle and should generally conform to the illustration in figure 3.

The tape should preferably be wound so that it will emerge freely from the gap between winding drum and handle. This arrangement should minimise operator fatigue and also avoid sharp bending of the tape. The tape should not pass between the spacing cylinders or rollers at the end of the frame, where they are used to secure the side plates. The winding drum, which should be at least 28 mm diameter, should be fitted with a suitable pin or peg to secure the loop on the end of the tape or leader (short connecting length of tape used for coupling the dip-tape to the drum). The drum should be provided with a strong winding handle which carries a freely rotating knob.

5.3 DIP-WEIGHTS

5.3.1 General

Dip-weights shall be either of the two designs described below with dimensions as shown in figure 4. The lighter weight (nominal mass 0.7 kg) is used for most conventional gauging operations. The heavier weight (nominal mass 1.5 kg) is intended for gauging heavy fuel oils and crude oils where sludge may be present on the dipping datum-plate. Both dip-weights are designed for use in conjunction with the dip-tapes described in 5.2. The 13 mm diameter bottom face shall act as the zero datum for the graduation of both dip-weight and dip-tape.

5.3.2 Material of Construction

Dip-weights shall be made of brass or other spark-resistant material of similar density.

5.3.3 Design

The form and dimensions of the weights shall be in accordance with figure 4.

The hole in the integral lug at the top of the dip-weight, shall have a minor diameter of 7 mm. The hole shall be of variable diameter, as illustrated in figure 5, to suit the curvature of the swivel hook. The flat face along the dip-weight shall be at least 12 mm wide at the central zone.

5.3.4 Marking

The flat faces shall be graduated in 1 mm intervals for at least 140 mm from the datum. Each 5 mm and 10 mm graduation line shall be longer than the other graduations and each 10 mm graduation shall be marked in centimetres.

The dip-weight shall be marked with the manufacturer's name or trade mark. The reference 'IP M10' is optional. The nominal mass of the dip-weight should also be marked. When a dip-weight is used as part of a master dip-tape/weight combination, it shall carry an individual serial number which should normally be the same as that on the associated dip-tape (see 5.2.6). The dip-weight serial number shall be recorded together with the tape serial number on the calibration certificate for the reference tape/weight combination.

5.4 ULLAGE-RULES

5.4.1 General

Ullage-rules are designed to be used in conjunction with the standard dip-tape as specified in 5.2. They can be used to replace dip-weights when ullaging tanks containing viscous, waxy or heated oils (see 6.3.2). The graduations on an ullage-rule are supplementary to those of the dip-tape. Ullage-rules shall conform to the dimensions specified in figure 6. The suspension point shall be the same as that in figure 7.

The nominal weight of the ullage-rule shall be sufficient to ensure that the dip-tape is kept taut whilst ullaging. The weight shall be the same as a standard dip-weight (*i.e.* 0.7 kg \pm 10%).

5.4.2 Marking

The lengths of face at each side of the rule shall be