

INFORMATION TO BE SUPPLIED BY THE MANUFACTURERS OF PROPRIETARY SYSTEMS

1. GENERAL

1.1. The information which the manufacturer is required to supply shall be in such detail as to obviate unsafe use of the equipment due to the intention of the manufacturer not having been made clear or due to wrong assumptions on the part of the user.

1.2. The user shall refer unusual problem or problems of erection/assembly not in keeping with the intended use of the equipment, to the manufacturer of the equipment.

2. INFORMATION REQUIRED

2.1. The manufacturers of proprietary systems shall supply the following information:

- a) Description of basic functions of equipment
- b) List of items of equipment available, giving range of sizes, spans and such like, with the manufacturer's identification numbers or other references.
- c) The basis on which the safe working loads have been determined and whether the factor of safety given applies to collapse or yield.
- d) Whether the supplier's data is based on calculations or tests. This shall be clearly stated as there may be wide variations between results obtained by either method.
- e) Instructions for use and maintenance, including any points which require special attention during erection, especially where safety is concerned
- f) Detailed dimensional information, as follows :
 - (i) Overall dimensions and depth and widths of members.
 - (ii) Line drawings including perspectives and photographs showing normal uses.
 - (iii) Self weight.
 - (iv) Full dimensions of connections and any special positioning arrangements.
 - (v) Sizes of members, including tube diameters and thicknesses of materials.
 - (vi) Any permanent camber built into the equipment
 - (vii) Sizes of holes and dimensions giving their positions.
- g) Data relating to strength of equipment as follows :
 - (i) Average failure loads as determined by tests.
 - (ii) Recommended maximum working loads for various conditions of use.
 - (iii) Working resistance moments derived from tests.
 - (iv) Working shear capacities derived from tests.
 - (v) Recommended factors of safety used in assessing recommended loads and deflections based on test results

Appendices

- (vi) *Deflections under load together with recommended pre-camber and limiting deflections.*
 - (vii) *If working loads depend on calculations, working stresses should be stated. If deflections depend on theoretical moments of inertia or equivalent moments of inertia rather than tests, this should be noted.*
 - (viii) *Information on the design of sway bracing against wind and other horizontal loadings.*
 - (ix) *Allowable loading relating to maximum extension of bases and/or heads.*
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*Appendix - 1700/I***SPECIFICATION FOR CONSTRUCTION JOINTS****Location**

The location of construction joints shall be as shown on the drawing or as approved by the Engineer. If additional/new joints are approved by the Engineer, the following considerations for their location shall be taken into account :

- (i) Joints shall be provided in non-aggressive zones or in non-splash zones. If not feasible, the joints shall be sealed.
- (ii) Joints should be positioned where they are readily accessible for preparation and concreting, such as location where the cross section is relatively small, and where reinforcement is not congested.
- (iii) In beams and slabs, joints should not be near the supports. Construction joints between slabs and ribs in composite beams should be avoided.
- (iv) For box girders, it is preferable to cast the soffit and the webs without any joint.
- (v) Location of joints shall minimise the effects of the discontinuity on the durability, structural integrity and the appearance of the structure.

Preparation of Surface of the Joint

Laitance shall be removed before fresh concrete is cast. The surface shall be roughened. Care shall be taken that they should not dislodge the coarse aggregates. Concrete may be brushed with a stiff brush soon after casting while the concrete is still fresh.

If the concrete has partially hardened, it shall be treated by wire brushing or with a stiff water jet followed by drying with air jet immediately.

Fully hardened concrete shall be treated with mechanical hand tools or grit blasting, taking care not to split or crack aggregate particles.

Before further concrete is cast, the surface should be thoroughly cleaned to remove debris and accumulated rubbish, one effective method being by air jet.

Where there is likely to be a delay before placing the next concrete lift, protruding reinforcement shall be protected. Before the next lift is placed, rust, loose mortar or other contamination shall be removed from the reinforcements. In aggressive environment, the concrete shall be cut back to expose the reinforcements for a length of about 50 mm to ensure that contaminated concrete is removed.

Appendices

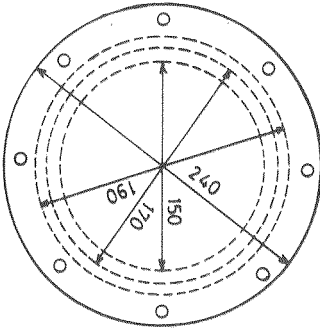
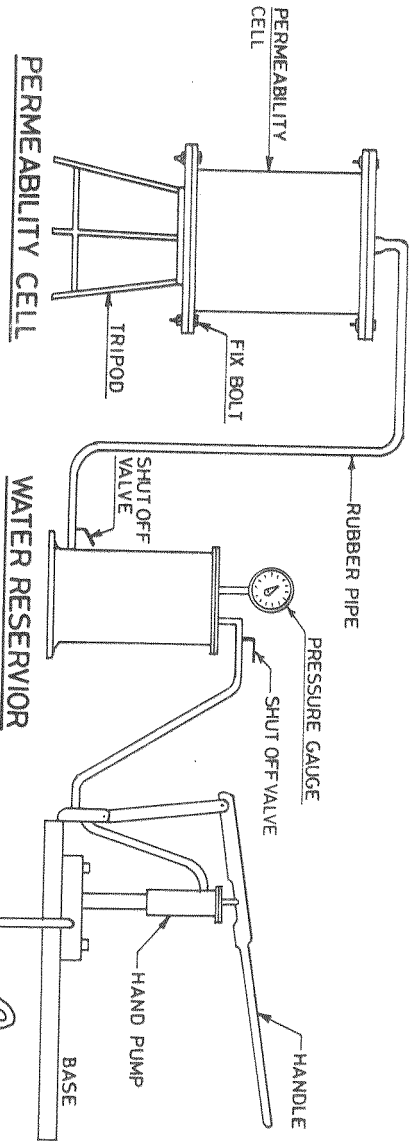
The joint surface shall not be contaminated with release agents, dust or curing membrane.

Concreting of Joints

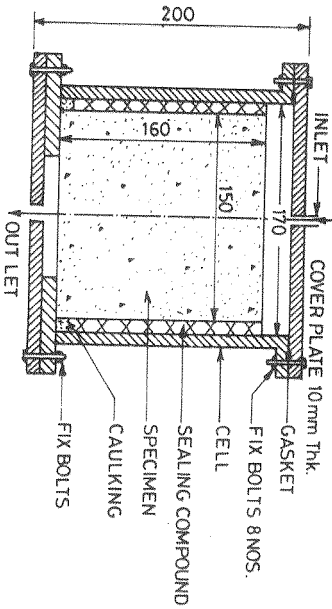
The old surface shall be thoroughly cleaned and soaked with water. Standing water shall be removed shortly before the new concrete is placed and the new concrete shall be thoroughly compacted. Concreting shall be carried out continuously upto the construction joints.

Surface retarders may be used to improve the quality of construction joints.

For a vertical construction joint, a stopping board shall be fixed previously at the predetermined position and shall be properly stayed to prevent its displacement or bulging when concrete is compacted against it. Concreting shall be continued right upto the board.



PLAN



SECTION

TESTS ON SHEATHING DUCTS

All tests specified below shall be carried out on the same sample in the order given below.

At least 3 samples for one lot of supply (not exceeding 7000 metre length) shall be tested.

The tests are applicable for sheathing transported to site in straight lengths where the prestressing cable is threaded inside the sheathing prior to concreting. These tests are not applicable for sheathing nor for coiled cable and transported to site as an assembled unit, nor for sheathing ducts placed in position without threading of prestressing cable prior to concreting.

(A) WORKABILITY TEST

A test sample 1100 mm long is soldered to a fixed base plate with a soft solder (Fig. 1800/I-1). The sample is then bent to a radius of 1800 mm alternately on either side to complete 3 cycles.

Thereafter, the sealing joints will be visually inspected to verify that no failure/opening has taken place.

(B) TRANSVERSE LOAD RATING TEST

The test ensures that stiffness of the sheathing is sufficient to prevent permanent distortion during site handling.

The sample is placed on a horizontal support 500 mm long so that the sample is supported at all points of outward corrugations.

A load as specified in Table 1 is applied gradually at the centre of the supported portion through a contact surface 12 mm long. It shall be ensured that the load is applied approximately at the centre of two corrugations, Fig. 1800/I-2. The load as specified is applied in increments.

TABLE 1

| dia (mm) | 25-35 | 35-45 | 45-55 | 55-65 | 65-75 | 75-85 | 85-90 |
|----------|-------|-------|-------|-------|-------|-------|-------|
| load (N) | 250 | 400 | 500 | 600 | 700 | 800 | 1000 |

The sample is considered acceptable if the permanent deformation is less than 5 per cent of the diameter of the sheathing.

(C) TENSION LOAD TEST

A test specimen is subjected to a tensile load. The hollow core is filled with a wooden circular piece having a diameter of 95 per cent of the inner dia of the sample to ensure circular profile during test loading, Fig. 1800/I-3.

A coupler is screwed on and the sample loaded in increments, till reaching the load specified in Table 2. If no deformation of the joints nor slippage of couplers is noticed, the test shall be considered satisfactory.

TABLE 2

| dia (mm) | 25-35 | 35-45 | 45-55 | 55-65 | 65-75 | 75-85 | 85-90 |
|----------|-------|-------|-------|-------|-------|-------|-------|
| load (N) | 300 | 500 | 800 | 1100 | 1400 | 1600 | 1800 |

(D) WATER LOSS TEST

The sample is sealed at one end. The sample is filled with water and after sealing, the end is connected to a system capable of applying a pressure of 0.05 MPa, Fig. 1800/1-4, and kept constant for 5 minutes using a hand pump with pressure gauge or stand pipe system can be used.

The sample is acceptable if the water loss does not exceed 1.5% of the volume.

Appendices

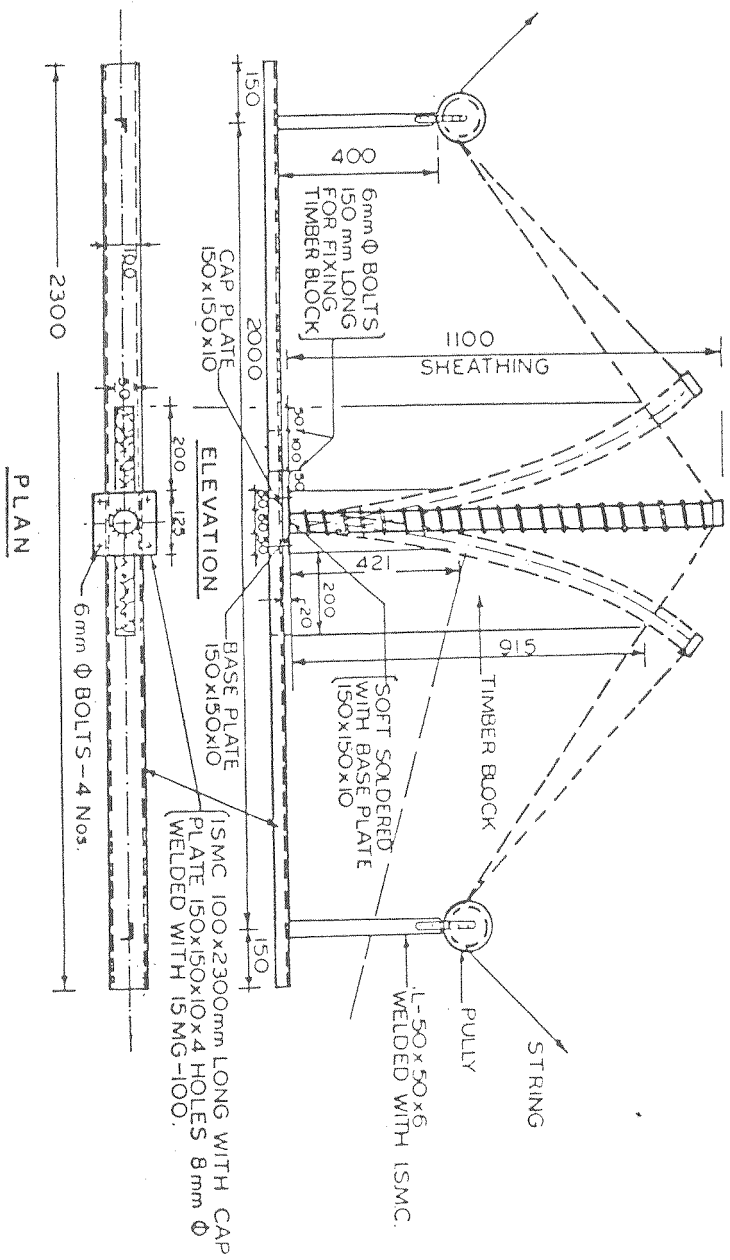
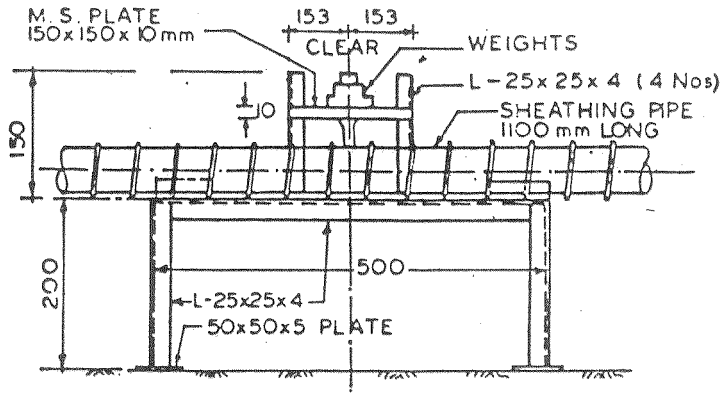


Fig. 1800T-1 : Dimensions are in mm.



ELEVATION

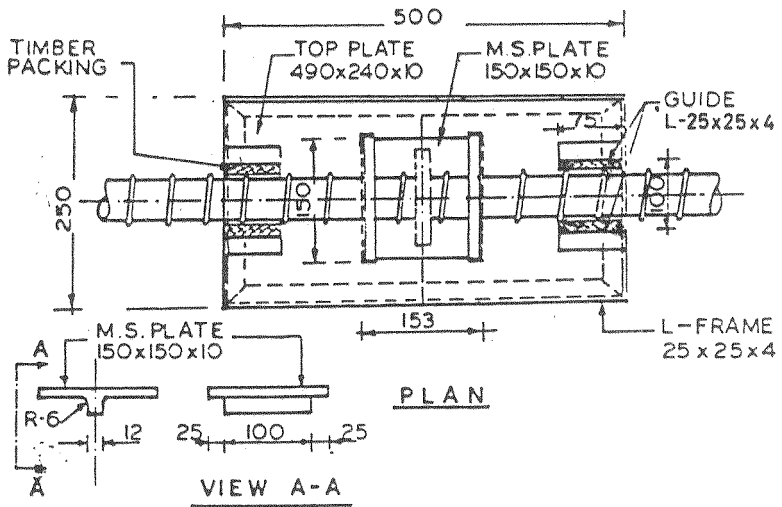


Fig. 1800/T-2 : Dimensions are in mm.

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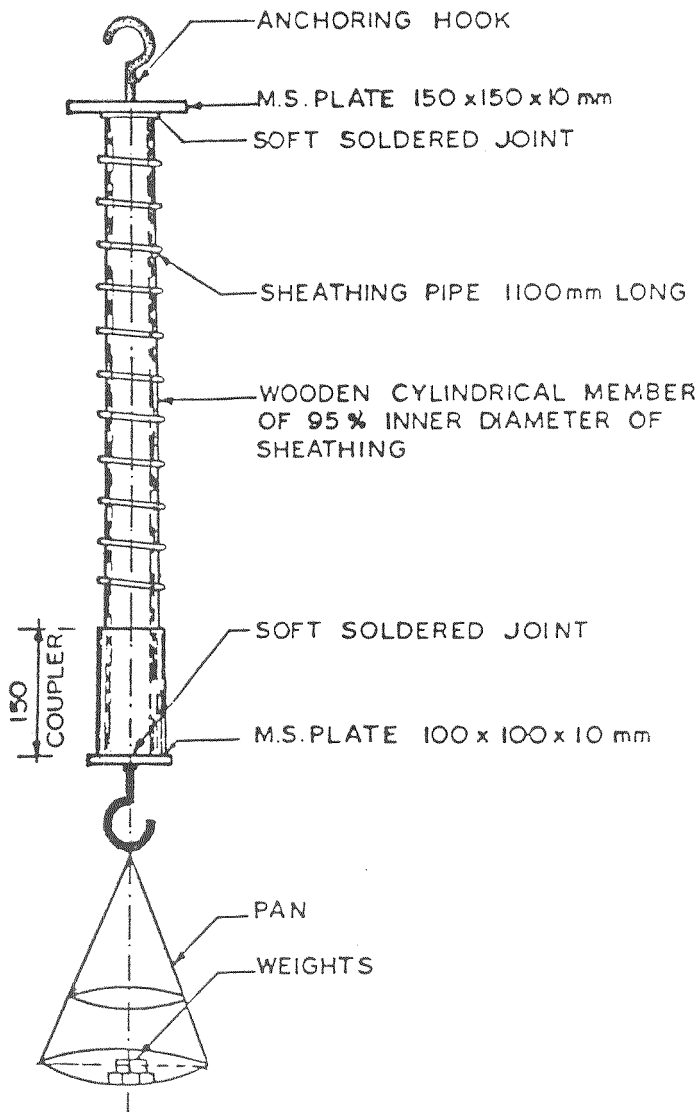


Fig. 1800/I-3 : Dimensions are in mm.

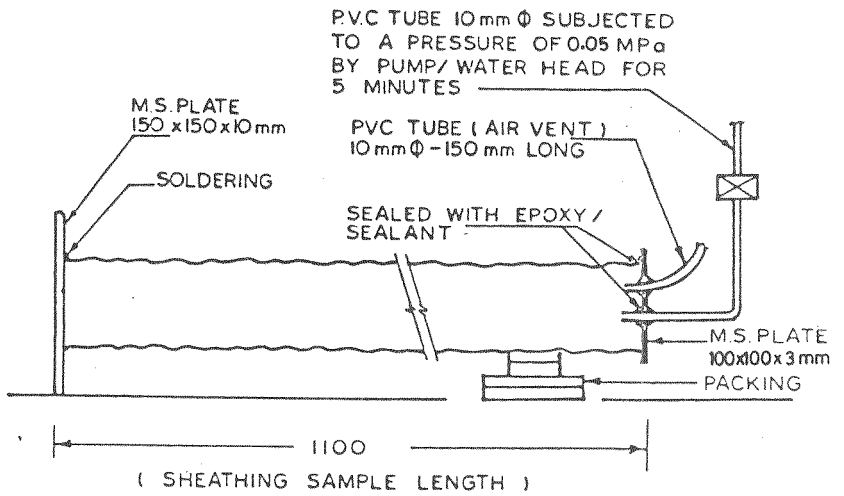


Fig. 1800/I-4 : Dimensions are in mm.

