

MEDC13 (4938) P3 - Specification for first Aid hose-reel for fire fighting

0 FOREWORD

Fire Safety is important in residence and workplace. Buildings shall incorporate the best firefighting system to stop the spread of fire breakouts which can create damage to property and mortality. Fires affect thousands of resources each year resulting in injury, lost life and building damage. This draft Tanzania standard cover the application of hose reel as firefighting in the building.

Hose-reels are recommended for use in fixed installations for various premises and also as an equipment to the fire engines. It is an equipment consisting of the reel, water inlet pipe, shut off nozzle, stop valve with hose reel tubing and provide a most effective firefighting facility.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculate d expressing the result of a test or analysis, shall be rounded off in accordance with TZS 4: 2009* (2nd Ed)

*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

In the preparation of this standard, reference was drawn from;

IS 884:2010, Specification for First – Aid hose – Reel for firefighting.

1. SCOPE

1.1 This Draft Tanzania standard lays down the requirements for materials, constructional details and tests for first- aid hose reels intended for installation in buildings and for mounting on fire engine.

2. GENERAL

2.1 The hose reel shall consist of following components:

- a) Hub,
- b) Two sides,
- c) Swivel joint,
- d) Pipe with fitting,
- e) Wall bracket,
- f) Hose reel,
- g) Nozzle with shutt off arrangement, and
- h) Stop valve.

3. MATERIALS

3.1 The details of materials for the various components are given in Table 1.

TABLE 1: DETAILS OF MATERIALS FOR VARIOUS COMPONENTS OF HOSE REEL

S/N	COMPONENTS	MATERIAL
i	Hub	Mild steel sheet / Aluminum alloy
ii	sides	Mild steel sheet / Aluminum alloy
iii	Wall bracket	Cast Iron
iv	Swivel joint	Leaded tin bronze
v	Hose reel tubing	Rubber / Thermoplastic

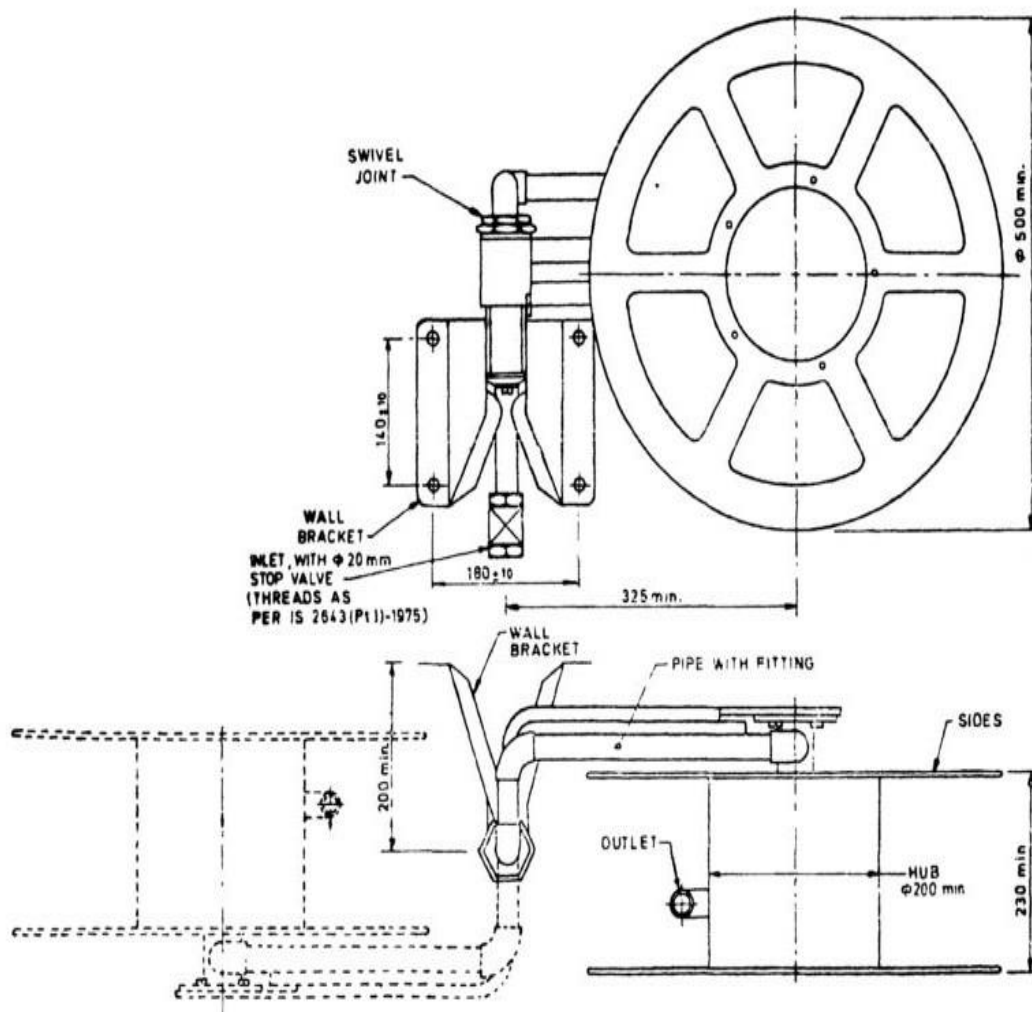
		hoses
vi	Nozzle with branch pipe and coupling	-
vii	Stop valve	-
viii	Pipe with fitting	Steel

4. TYPES

4.1 The reel shall be made in two types as below:

Type A - Swinging (180°) wall mounting type (see Fig. 1).

Type B - Horizontal type used for installation on fire (see Fig.2).



All dimensions in millimetres.

Fig. 1 HOSE REEL SWINGING TYPE

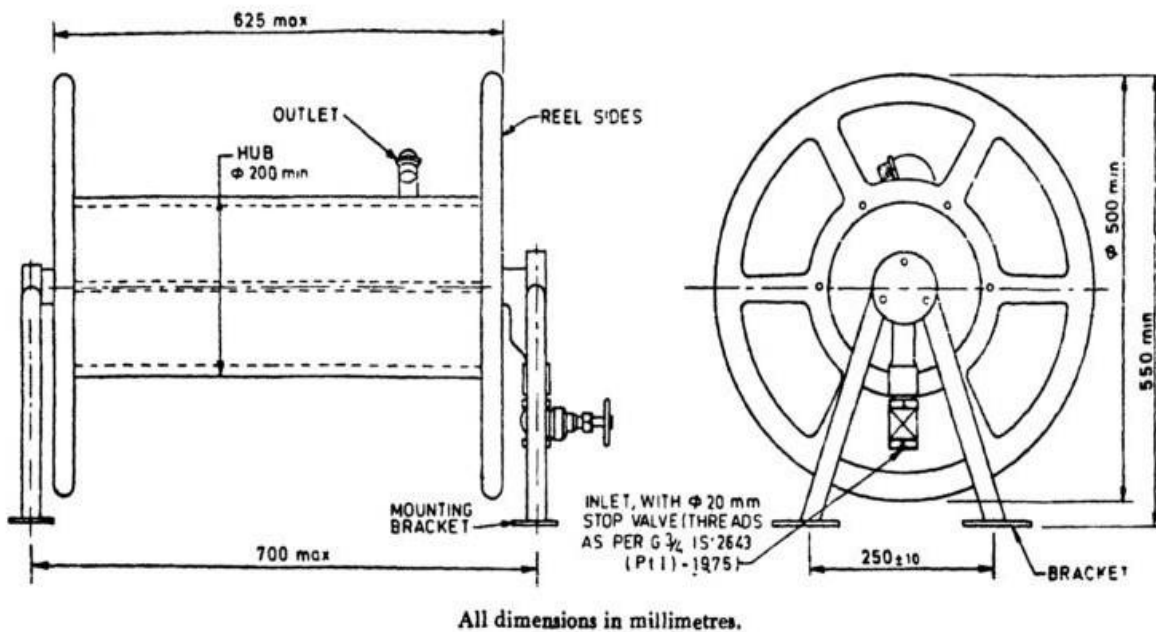


Fig. 2 HOSE REEL HORIZONTAL TYPE

5. REQUIREMENTS

5.1 The essential dimensions of the two types are given in Fig. 1 and 2. It shall be designed so as to comply with the requirements given in 5.2 to 5.4.

5.2 **Resistance to Leakage** - The complete assembly shall be capable of withstanding the hydrostatic pressure test of 20.6 bars kgf/cm² for 5 min.

5.2.1 Connect the hose reel to a water supply at a pressure of 10 bar and with the hose fully wound into the drum. Close the nozzle for 5 min. Unwind the hose completely, maintaining the pressure of 10 bar for a further 5 min.

5.2.2 The overall length (L) of the hosepipe shall be $15 \leq L \leq 30$ m

5.3 Impact Resistance Test (Strength Test)

5.3.1 Impact Test - Rest a steel bridge 100 X 25 mm cross-section centrally across the two reel side plates vertically above the centre line of the spindle. The length of the steel bridge shall be such that it extends by at least 10mm on either side of the two round plates when kept on them. The steel bridge shall have two numbers of suitable parallel grooves, say 10 mm wide and 5 mm deep to ensure that the bridge shall not slip and fall down during the conduct of Impact resistance test.

Mount a steel cylindrical hammer of 25 kg mass and with flat faces in guides above the steel bridge so that it falls freely through a height of 300 mm to strike the steel bridge mid span between the two plates. After a single impact, test the reel in accordance with 5.4.1.

The arrangement of the impact test is shown in Fig. 3. As a result of single impact due to free fall of 25 kg mass from a height of 300 mm the reel shall not get deformed and the distance between the parallel round plates shall not change. This shall be a type test.

5.3.2 Load Resistance - A mass of 80 kg is suspended using steel wire ropes on the top edge of front round plate (with clamps) constituting one side of the hose reel. Remove the mass after 72 h and test the reel in accordance with 5.4.1. The arrangement of the load test is shown in Fig 4. This shall be a type test

5.4 Range and Water Flow Rate - When tested in accordance with 5.4.1, the water flow rate shall be not less than 24 l/min and the range of tile jet shall be not less than 6 m. This shall be a type test.

5.4.1 Range- and Water flow Test --. Measure the range and water flow rate of the reel at inlet pressure of 0.7 ± 0.01 bar. The range is the distance from the nozzle to the point on the ground beyond which 50 percent of the discharge falls. Measure the range with the nozzle 1 m above floor level at an angle of elevation to give maximum range.

5.5 Swinging

In case of Type A Hose Reel swivel joint(s) shall be incorporated in the construction to enable the users to swing the hose reel by 180degrees while pulling the hose in either direction.

5.6 Reel Action

In case of both Type A and Type B hose reels it shall be possible to easily and smoothly unwind the hose by pulling the hose end having nozzle fitted to it

6 WORKMANSHIP

The construction of the hose reel shall be such that there shall be no sharp end jagged edges or surface, etc, so as to cause physical injury to the personnel handling the hose reel.

7 PAINTING

All the internal and external surface of the ferrous components of the hose reel shall be coated with epoxy polyester powder to 50 p, Min thickness to protect it against rusting. The colour of the powder coating shall be fire red conforming to Shade No. 536 or 538 of IS 5.' See annex A

8. MARKING

8.1 Each first-aid hose-reel shall be clearly and permanently marked with the following information:

- a) Manufacturer's Name or trade-mark,
- b) Year of manufacture, and
- c) Type of reel.

8.2 The use of the Standard Mark is governed by the provisions of the Bureau of Tanzania Standards Act, 1988 and the Rules and Regulations made thereunder.

The details of conditions under which the licence for the use of Standard Mark may be granted to manufactures or producers may be obtained from the Bureau of Tanzania Standards.

9. CRITERIA FOR CONFORMITY

9.1 Each equipment shall be checked, for the requirement given in this standard.

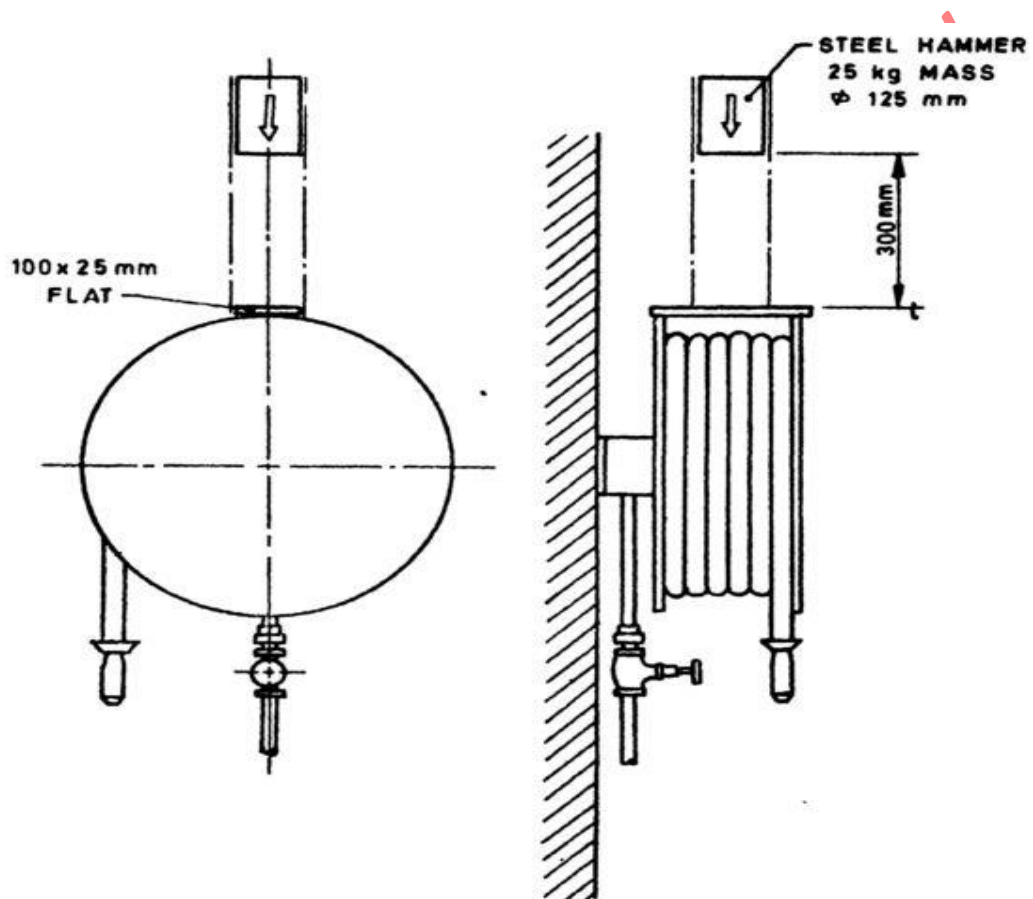


FIG. 3 DETAIL OF IMPACT TEST

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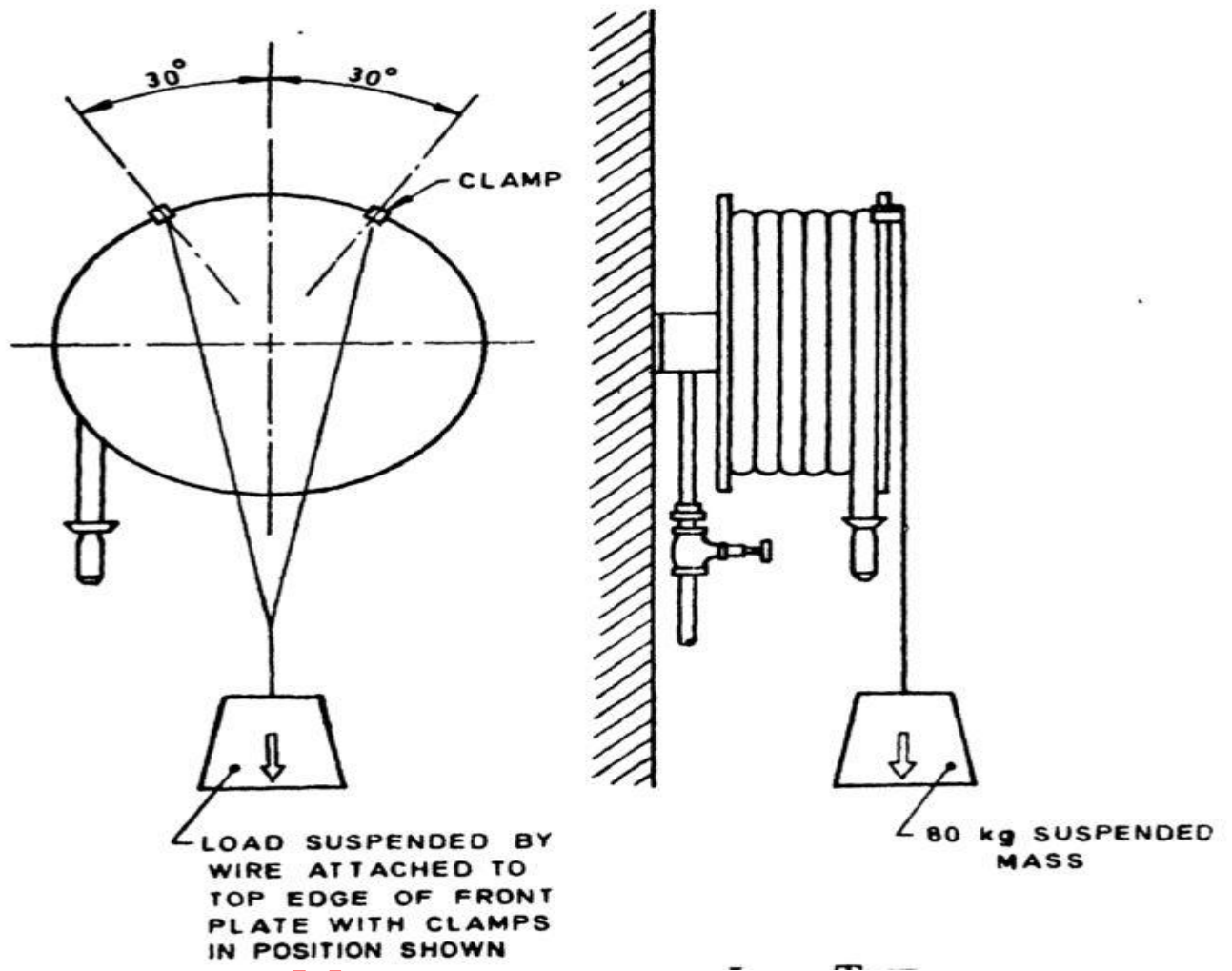


FIG.4 DETAIL OF LOAD TEST