



DRAFT TANZANIA STANDARD

**MEDC2 (4659) P3- Steel pipes – Hot – Dip zinc coating – Specification
(REVISION TZS147:2009)**

For Stakeholders comments only

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Mechanical Engineering Industries Development Agency
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Steel pipes – Hot – Dip zinc coating – Specification

0 Foreword

The hot-dip galvanizing process is very widely used for obtaining protection against corrosion of large variety of ferrous products. This Tanzania Standard has been formulated with a view to achieving efficient and economic protection of steel tubes by hot-dip galvanized coating of adequate and uniform thickness.

In the preparation of this Tanzania Standard, reference was made to the following publication:

IS 4736: 1968, *Specification for hot-dip zinc coating on steel tubes* issued by the Indian Standards Institution.

For the purpose of deciding whether a particular requirement of this Tanzania Standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with TZS 4 (see clause 2). The number of significant places retained in the rounded off value should be the same as that of the specified value in this Tanzania Standard.

1 Scope

This Tanzania Standard covers the requirements for zinc coating applied by hot-dip galvanizing on steel tubes covered in TZS 152 (see clause 2).

2 References

For the purpose of this Tanzania Standard, the following references shall apply:

TZS 4: 2009, *Rounding off numerical values*

TZS 10: 2009, *General requirements for the supply of metallurgical materials*

TZS 152: 2009, *Steel tubes – mild steel tubes and sockets screwed* according to TZS 153: 2009, *Specification*

3 Supply of material

General requirements relating to the supply of material shall conform to TZS 10 (see clause 2).

3.1 Quality of zinc

Zinc used for galvanizing shall conform to any of the graded specified in IS 209: 1992 zinc ingot (fourth revision) or IS 13229:1991 Zinc for galvanizing.

4 General requirements

4.1 Quality of zinc

The total impurities in the zinc to be used for the purpose of galvanizing shall not exceed two percent.

4.2 Galvanizing

Steel pipes shall first be thoroughly descaled, washed and then dipped in a bath of molten zinc at a temperature suitable to produce a complete and uniformly adherent coating of zinc.

5 Coating requirements

5.1 Mass of zinc coating

Tubes of any thickness, the minimum mass of zinc coating, when determined on a 100mm long test piece (see 6.2) in accordance with IS 6745 1972 shall be 360 g/m².

NOTE- Mass of zinc coating shall not be less than 360 g/m² when tested on two specimens taken from opposite ends of the tube selected for testing.

5.1.1 The mass of coating expressed in grams per square metre shall be calculated by dividing the total mass of zinc (inside plus outside) by the total areas (inside plus outside) of the coated surface.

5.2 Freedom from defects

The zinc coating shall be uniform, adherent, reasonably smooth and free from such imperfections as flux, ash and dross inclusions, bare patches, black spots, pimples, lumpiness, runs, rust stains, bulky white deposits and blisters.

5.3 Adhesion Test

Galvanized pipes up to and including 50 mm nominal bore, when bent cold through 90° round a grooved former having a radius at the bottom of the groove equal to eight times its outside diameter, shall not develop any crack in the coating.

5.3.1 For pipes above 50 mm nominal bore the adherence of zinc coating shall be determined by the pivoted hammer given in 5.3.2.

5.3.2 The hammer used shall conform to the drawing shown in figure 1. The hammer blow shall be controlled by holding the pivoted base of the handle on a horizontal surface of the galvanized pipe and allowing the hammer head to swing freely through an arc from vertical position to strike the horizontal surface. The test shall consist of two or more standard blows forming parallel impressions with six millimeters spacing and a common axis, as illustrated in the figure. No part of an impression shall be closer than 12 mm to the edge of the pipe. Removal or lifting of the coating in the area between the impressions shall constitute failure. An extruded ridge less than two millimeters wide immediately adjacent to the impression shall be disregarded.

5.4 Uniformity of Galvanized coating

The galvanized coating when determined on a 100 mm long test piece (see 6.2) in accordance with IS 2633 1906* shall withstand 5 one minute dips.

6 Sampling and preparation of test specimen

6.1 The sampling shall be as given below:

Nominal bore	Sample size
Up to 25 mm	One pipe per 1000 pipes or part thereof
Above 25 mm	One pipe per 500 pipes or part thereof.

6.2 Test specimens shall be cut approximately 100 mm in length from opposite ends of the lengths of piece selected for testing. Before cutting the specimens, 50 mm from both ends of sample shall be discarded.

7 Retest

Should any of the test pieces fail to pass the requirements of this Tanzania Standard, two further samples, from the same batch, shall be selected for testing. Should the test pieces from both these additional samples pass, the batch represented by the test samples shall be deemed to comply with the standard.

Should the test pieces from either of these additional samples fail, the batch represented by the test samples shall be deemed not to comply with this Tanzania Standard

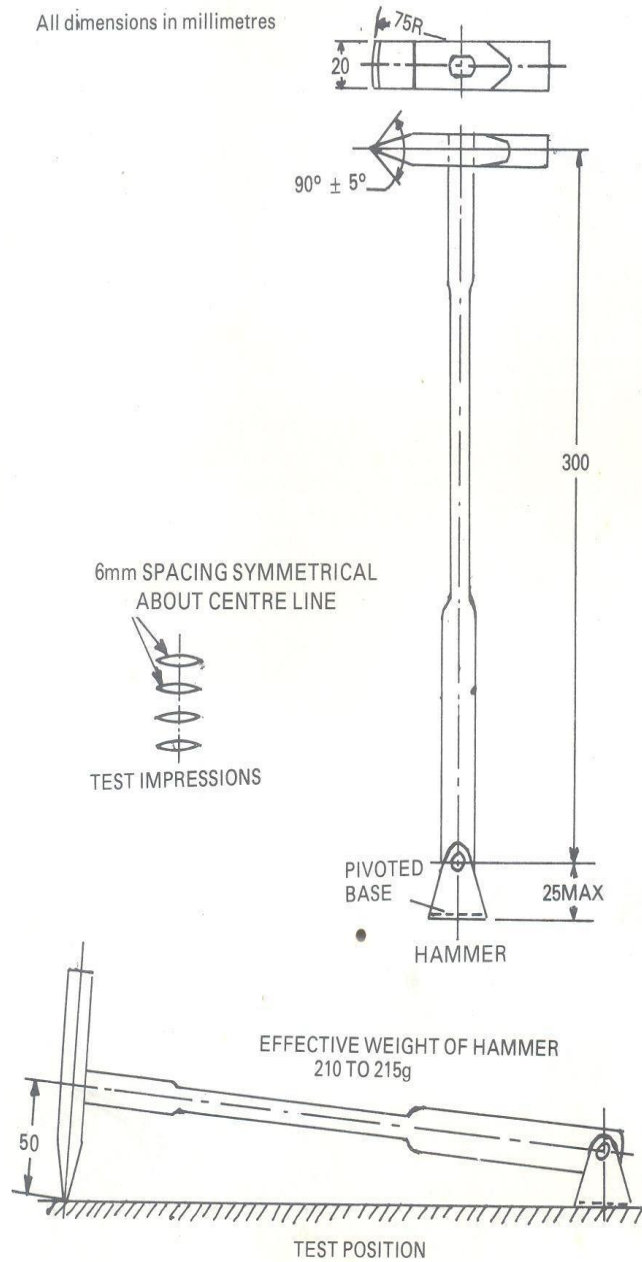


FIGURE 1 – Pivoted riveting hammer

For stakeholders comments only