



DRAFT TANZANIA STANDARD

Welded steel wire fabric for general use — Specification

DRAFT FOR PUBLIC COMMENTS

TANZANIA BUREAU OF STANDARDS

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The Mechanical Engineering Divisional Standards Committee (MEDC) under whose supervision, this Tanzania Standard was prepared, consists of representatives from the following organizations:

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- *National Development Corporation (NDC)
- Weights and Measures Agency (WMA)
- Tanzania Industrial Research Development Organization (TIRDO)
- *Aluminium Africa Limited
- National Institute of Transport (NIT)
- Ministry of Works

The organizations marked with an asterisk (*) in the above list, together with the following, were directly represented on the Technical Committee entrusted with the preparation of this Tanzania Standard:

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- National Development Corporation (NDC)
- M.M. Integrated Steel Mills Limited
- Trans Auto Parts Company Limited (TAPCO)
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Tanzania Bureau of Standards
P O Box 9524
Dar es Salaam
Phone: 022 2450206/2450949/2450298
Fax: 022 2450959
Email: info@tbs.go.tz

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0 Foreword

This finalized Tanzania Standard has been prepared under Metals and Structures Technical Committee (MEDC 02), under supervision of Mechanical Engineering Standards Divisional Committee (MEDC).

During the preparation of this Tanzania Standard, assistance was derived from the following publications:

IS 4948:2020, published by the Bureau of Indian Standards *Welded Steel Wire Fabric for General Use — Specification*.

1 Scope

1.1 This standard covers requirements for welded steel wire fabric for general use, such as fencing, window grill and crates.

1.2 This standard does not cover welded wire fabric for concrete reinforcement as it is covered in TZS 142-3.

2 Normative references

TZS 11, Cold drawn mild steel wire for general engineering purposes — Specification

ISO 16143-3, Stainless steels for general purposes — Part 3: Wire

3 Terms and definitions

For the purpose of this standard the following definitions shall apply.

3.1 Welded Wire Fabric

A material composed of mild or stainless steel wire as drawn, fabric at edition to sheet (or mesh) formed by the process of electric welding. The finished material shall consist essentially of a series of longitudinal and transverse wires arranged substantially at right angles to each other and then welded to get her at all points of intersection.

4 Materials

4.1 Mild steel wire used for the manufacture of welded fabric shall conform to TZS 11.

4.2 Stainless steel wire used for the manufacture of welded fabric shall conform to ISO 16143-3.

5 Manufacture of mesh

5.1 Assembling of Wires

The wire shall be assembled by automatic machines or by other suitable mechanical means which will assure accurate spacing and alignment of all members of the finished fabric within specified tolerances (see 8.1).

5.2 The longitudinal and transverse wires shall be securely connected at every intersection by a process of welding.

5.3 It shall be fabricated and finished in a workman like manner and shall be free from injurious defects.

5.4 Spacing of Longitudinal and Transverse Wires

Spacing and arrangement of wire and dimensions of units in flat sheets or rolls shall conform to the requirements specified by the purchaser.

The mesh sizes and sizes of wire for square as well as for oblong welded wire fabric for general use commonly manufactured are given in Annex A for information.

5.5 Tolerance of Size of Mesh

In any individual mesh, the maximum variation between two members when measured between centre to centre shall not vary more than 5 percent.

5.6 Tolerance of Size of Sheet or Roll

The length of flat sheet or rolls measured on any wire may vary by 25 mm or one percent whichever is greater.

6 Tests for welding

6.1 In order to ensure adequate weld shear strength between longitudinal and transverse wire, a weld shear Test as described in 6.1.1 shall be made. The minimum average value of the weld shall not to be less than 21 kg/mm² and the area of the wire to be taken into consideration for calculation is the longitudinal wire. The fabric having a diameter difference between the longitudinal and transverse wire greater than 2 mm shall not be subjected to the weld shear test.

6.1.1 Procedure for Test

The test shall be conducted using a fixture of suitable design which will prevent rotation of the transverse wire. The transverse wire shall be placed in the anvil of the testing device which is secured in the tensile machine and the load then applied to the longitudinal wire. Four welds selected at random from specimen representing the entire width of the fabric, exclusive of the selvage wire, shall be tested for weld shear strength.

A suitable device for testing of weld strength is given in Figure 1.

6.1.2 One weld shear test (see 6.1.1) shall be conducted on fabric at every 30,000 m² of fabric manufactured.

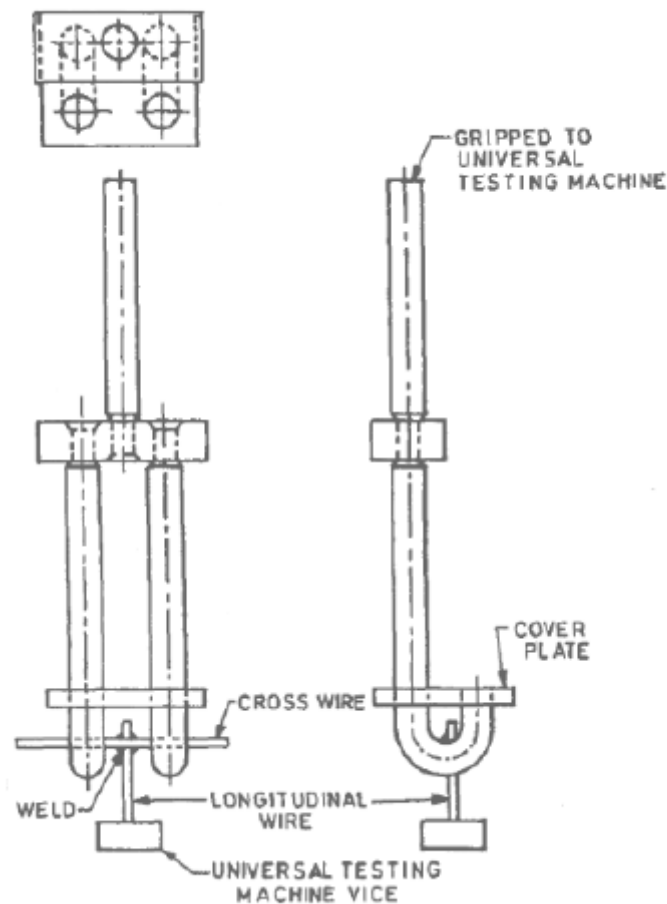


Figure 1: Typical Testing Device for Testing Weld Shear Strength

7 Samples and number of tests for tensile strength, bend test and percentage elongation

7.1 Samples

The samples shall be taken from the wire used before fabrication or after fabrication of mesh.

7.2 Number of Tests

Number of tests shall be as under:

- When the tests are done on drawn wire before fabrication the frequency of the test shall be one test of each on every 10 or part of 10 coils.
- When the test is done on fabric, one test of each shall be done on every 7 000 m² of fabric.

NOTE: The tests for tensile strength and percentage elongation shall be done on the wire before fabrication.

8 Bundling

8.1 When the fabric is finished in flat sheets, it should be assembled in bundles of convenient size containing not more than 150 sheets, and securely fastened. Sheets may be supplied without bundling, if it is so agreed to between the manufacturer and the purchaser.

8.2 When the fabric is finished in rolls, each roll shall be secured so as to prevent unwinding and telescoping during shipment, and handling. The ends of the wire of the bundle shall be tied with soft wire so that the materials do not get damaged during transportation.

9 Marking

9.1 Each bundle shall be provided with the following information.

- a) Name or trade-mark of the manufacturer;
- b) Description of the material;
- c) Code, if any;
- d) Size of mesh;
- e) Wire diameter use for longitudinal and transverse wire;
- f) Width and length of the welded steel wire fabric; and
- g) Any other information as specified by the purchaser.

9.2 The information to be supplied by the purchaser in Annex B.

10 Finish

10.1 All the surface of wire fabric, shall be cleaned free of rust, mill scale, dirt, oil, etc.

10.2 If required by the purchaser, the mild steel wire may be given suitable anticorrosive treatment such is given as pickling followed by painting, phosphating and painting, hot dip galvanizing etc.

ANNEX A**(Informative)****Mesh Sizes and Wire Sizes****A-1 Square Mesh**

S/No.	Mesh Size, Nominal Pitch of Wire, mm	Diameter of Wire Each Way, mm
i)	15	1.60
ii)	20	2.00
iii)	20	2.50
iv)	20	3.15
v)	25	2.00
vi)	25	2.50
vii)	25	3.15
viii)	37	2.50
ix)	37	3.15
x)	50	2.50
xi)	50	3.15
xii)	50	3.55
xiii)	50	4.00
xiv)	50	4.50
xv)	75	2.50
xvi)	75	3.15
xvii)	75	3.55
xviii)	75	4.00
xix)	75	4.50
xx)	75	5.00
xxi)	75	5.60

A-2 Oblong Mesh

S/No.	Mesh Size, Nominal Pitch of Wire		Diameter of Wire No. Each Way	
	Longitudinal mm	Transverse mm	Longitudinal mm	Transverse mm
i)	50	25	2.50	2.50
ii)	50	25	3.15	3.15
iii)	50	25	3.55	3.55
iv)	50	25	4.00	4.00
v)	50	25	4.50	4.50
vi)	75	25	3.15	3.15
vii)	75	25	3.55	3.55
viii)	75	25	4.00	4.00
ix)	75	25	4.50	4.50
x)	75	25	5.00	5.00
xi)	75	25	5.00	3.15
xii)	75	50	3.15	3.15
xiii)	75	50	3.55	3.55
xiv)	75	50	4.00	4.00
xv)	75	50	4.50	4.50
xvi)	75	50	5.00	5.00
xvii)	75	50	5.60	5.60
xviii)	75	50	5.00	3.15
xix)	75	50	5.60	3.15
xx)	75	50	5.60	3.55

ANNEX B

(Informative)

Information to be supplied by the purchaser

B-1 The following information is to be supplied by the purchaser to the manufacturers:

- a) Diameter and material of the wire;
- b) Size of mesh (centre to centre distance both ways); and
- c) Total width and length required.

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