SRI LANKA STANDARD 407:2008
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SPECIFICATION FOR

WELDED WIRE FABRIC FOR GENERAL PURPOSES

(First Revision)

SRI LANKA STANDARDS INSTITUTION

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Gr. 8

SRI LANKA STANDRDS INSTITUTION
No. 17, Victoria Place,
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SRI LANKA.

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

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FOREWORD

This standard was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 2008.04.30 after the draft, finalized by the Working Group on welded wire fabric, had been approved by the Sectoral Committee on Engineering Materials, Mechanical Systems and Manufacturing Engineering.

This standard specifies requirements for materials, size of wire, manufacture of mesh, tolerances on mesh and sheet or roll and physical requirements for finished welded wire fabric and methods of test.

All values given in this specification are in SI units.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or an analysis shall be rounded off in accordance with **CS 102**. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this standard.

In the preparation of this specification assistance derived from **IS 4948:2002** of the Bureau of Indian Standards is gratefully acknowledged.

1 SCOPE

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

This standard is not intended to cover welded wire fabric for concrete reinforcement.

2 REFERENCES

CS 102 Presentation of numerical values
SLS 139 Mild steel wire for general engineering purposes
SLS 428 Random sampling numbers
SLS 978 Tensile testing of metallic materials

3 DEFINITIONS

3.1 welded wire fabric / mesh: A material composed of cold drawn steel wire, black or galvanized, fabricated into sheet / mesh by a process of welding. The finished product shall consist of essentially a series of longitudinal and transverse wire arranged substantially at right angles to each other, and then welded together at all points of intersection.

3.2 mesh size: The distance between the centers of the adjacent longitudinal wires and the distance between the centers of the adjacent cross wires in millimeters.

4 REQUIREMENTS

4.1 Material

Mild steel wire used for the manufacture of welded fabric shall conform to **SLS 139**.

4.2 Size of wire

The nominal wire diameters shall conform to the sizes given in the Table **1**.

4.3 Manufacture of mesh

4.3.1 *Assembling of wires*

The wire shall be assembled so as to ensure accurate spacing and alignment of all members of the finished fabric within specified tolerances given in **4.3.3**. The longitudinal and transverse wires shall be securely connected at every intersection, by welding. It shall be fabricated and finished to a high degree of workmanship and be free from defects.

4.3.2 *Size of mesh*

Spacing and arrangement of wire and dimensions of units in flat sheets or rolls shall be in accordance with Table **1**.

TABLE 1: Size of mesh

Mesh Size, Nominal Pitch of Wire (mm)	Diameter of Wire (mm)
15	2.00
20	2.00
20	2.50
20	3.00
25	2.00
25	2.50
25	3.00
50	2.50
50	3.00
50	3.50
50	4.00
50	4.50
75	2.50
75	3.00
75	3.50
75	4.00
75	4.50
75	5.00
75	5.50

Any other sizes may be manufactured as agreed to by the manufacturer and the purchaser.

4.3.3 *Tolerance on size of mesh*

In any individual mesh, the maximum variation of distance between two adjacent members when measured between center to center shall not vary by more than 5 per cent.

4.4 Panel size

4.4.1 *Sheet*

The standard sheet shall be 2 m wide and 3.5 m long, or any other sizes as agreed by the manufacturer and the purchaser.

4.4.2 *Roll*

The roll shall be 2 m wide and 50 m or 75 m long, or any other sizes as agreed by the manufacturer and the purchaser.

4.5 Tolerance of size of sheet or roll

The length or width of flat sheets or rolls measured on any wire may vary by ± 25 mm or ± 1 per cent whichever is greater.

4.6 Finish

All the surface of wire fabric shall be clean and free of rust, mill scale, dirt, oil etc. If galvanized wire is used, galvanized coating of the wire shall conform to Class D, in **SLS 139.**

4.7 Physical requirements

4.7.1 *Tensile strength*

When tested in accordance with **SLS 978,** the ultimate tensile strength of the wire used for the fabrication of the mesh shall not be less than

(a) 310 N/mm^2 in the case of galvanized wire mesh, and
(b) 540 N/mm^2 in the case of black wire mesh.

4.7.2 *Weld shear strength*

In order to ensure adequate weld shear strength between longitudinal and transverse wire, a weld shear test as described in **6.1** shall be made. The minimum average value of the weld strength shall not be less than 200 N/mm^2 and the area of the wire to be taken into consideration for calculation is that of the longitudinal wire. The fabric having a diameter difference between the longitudinal wire and the transverse wire greater than 2 mm shall not be subjected to the weld shear test.

5 BUNDLING

5.1 When the fabric is finished in flat sheets, it should be assembled in bundles of convenient size containing not more than 100 sheets, and securely fastened. Sheets may be supplied without bundling, if it is so agreed between the manufacturer and the purchaser.

5.2 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.

6 METHODS OF TEST

6.1 Weld shear 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.

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

7 MARKING

The following information shall be provided with each bundle:

a) Name or trade mark of manufacturer;
b) Size of mesh;
c) Wire diameter;
d) Width and length of welded steel wire fabric/mesh; and
e) Batch number.

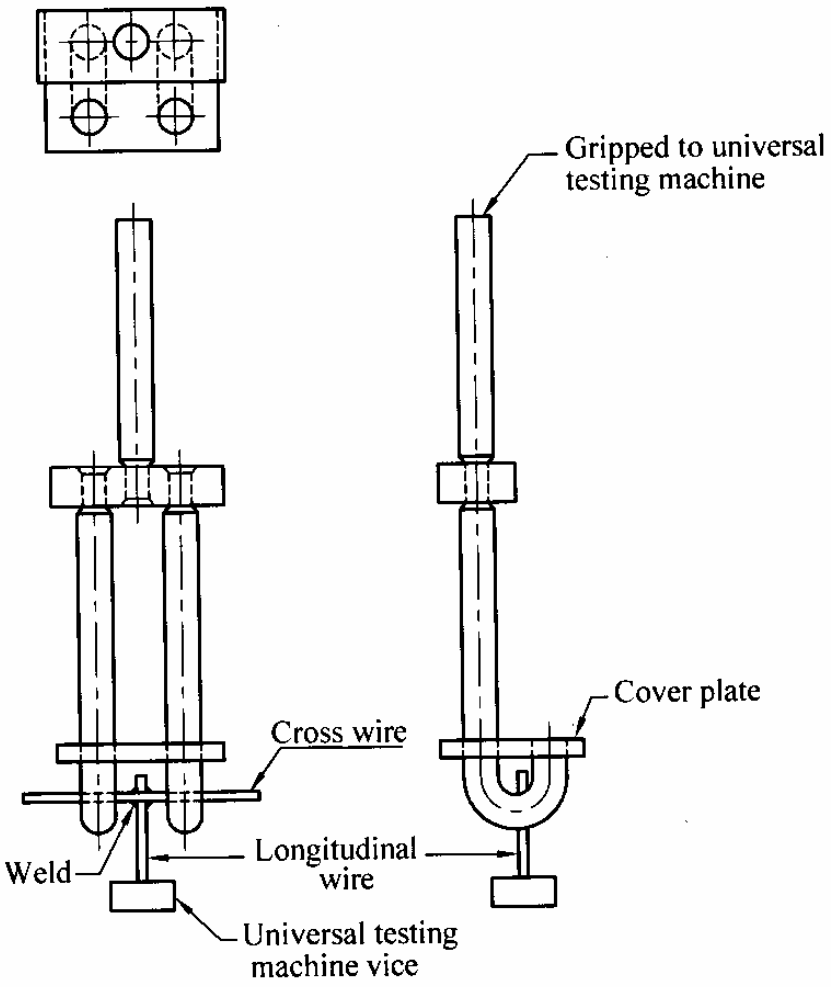

FIGURE 1- Device for testing weld shear strength

APPENDIX A
COMPLIANCE OF A LOT

The sampling scheme given in this Appendix shall be applied where compliance of a lot to the requirements of this standard is to be assessed based on statistical sampling and inspection.

Where compliance with this standard is to be assessed based on manufacturer's control systems coupled with Type Testing or any other procedure, appropriate schemes of sampling and inspection shall be adopted.

A.1 LOT

In any consignment, all welded wire fabric rolls or sheets of the same dimension belonging to one batch of manufacture or supply shall constitute a lot.

A.2 SCALE OF SAMPLING

A.2.1 Samples shall be tested from each lot for ascertaining conformity of material to the requirements of this specification.

A.2.2 Three rolls/ bundles of sheets of welded wire fabric shall be selected randomly from the lot. In order to ensure randomness of selection, Tables of random numbers as given in **SLS 428** shall be used.

A.2.3 One test piece of size 0.5 m length and 2 m wide shall be cut from free end of each roll or sheet drawn from each bundle selected as in **A.2.2** to from three samples.

A.3 NUMBER OF TESTS

A.3.1 Each roll/bundle selected as in **A.2.2** shall be inspected for marking requirements.

A.3.2 Each test piece obtained as in **A.2.3** shall be examined for the relevant requirements given in **4.2, 4.3, 4.5** and **4.6**.

A.3.3 Two separate test pieces of sufficient length shall be cut from each test piece selected as in **A.2.3** and one piece is tested for tensile strength **(4.7.1**) and the other piece for weld shear strength (**4.7.2**).

A.4 CRITERIA FOR CONFORMITY

A lot shall be declared as conforming to the requirements of this specification if the following conditions are satisfied:

A.4.1 Each/bundle inspected as in **A.3.1** satisfies the relevant requirements.

A4.2 Each test piece examined as in **A.3.2** satisfies the relevant requirements.

A.4.3 Each test piece tested as in **A.3.3** satisfies the requirements of weld shear strength.

A.4.4 The value of the expression $\bar{x}$ - s (see notes) calculated using the test results on tensile strength is not less than the relevant specification level when tested as in **A.3.3**.

NOTES :

1. *Mean* $(\bar{x}) = \dfrac{Sum\ of\ the\ observed\ values}{Nunber\ of\ values}$

2. *Standard deviation (s) = The positive square root of the quotient obtained by dividing the sum of squares of the deviations of the test results from their arithmetic mean by one less than the number of test results.*

SRI LANKA STANDARDS INSTITUTION

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The principal objects of the Institution as set out in the Act are to prepare standards and promote their adoption, to provide facilities for examination and testing of products, to operate a Certification Marks Scheme, to certify the quality of products meant for local consumption or exports and to promote standardization and quality control by educational, consultancy and research activity.

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Printed at the Sri Lanka Standards Institution, 17, Victoria Place, Elvitigala Mawatha, Colombo 08.

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