

REA SPECIFICATION No. 41012/1997
SPECIFICATION FOR GALVANIZED STEEL WIRE
(USED FOR STAY AS AND EARTHING)

1 INTRODUCTION

This Specification covers the details of the Galvanised Steel Wire Strand used for stays and as earth wire. Unless otherwise stated in the Schedule of requirements, the table below gives the typical standards of Galvanized stranded stay wire used by REA.

2 STANDARDS OF GALVANIZED STRANDED STEEL SATY WIRE USED BY REA

ITEM	DESCRIPTION OF GALVANISED STRANDED STAY WIRE
1	7/8 swgx45 ton, 7/4.00x700mpa
2	7/12 swgx45 ton, 7/2.65x700mpa
3	7/14 swgx45 ton, 7/2.00x700mpa

3 PARTICULARS OF ENVIRONMENT

Maximum wind pressure on project area of conductors and cylindrical objects	430 N/m ²
Maximum wind pressure on steel members On 1.5 times projected area	820 N/m ²
Rainfall conditions	800-1700 mm/year
Maximum	160mm in 24 hrs

The galvanized stranded steel wire shall be capable of withstanding the following environment conditions.

- a) Ambient temperature:
- (i) Minimum: 40°C
 - (ii) Minimum: minus 10°C
 - (iii) Maximum daily average: 35°C

- b) Humidity

Humidity of 13mg per cubic metre absolute and 65% relative before storms with vapour pressure of 17mmHg.

- c) The galvanized stranded steel wire will be subjected to tropical Conditions where sudden ambient air temperature changes of the order of 10°C per hour, occurring at the onset of rain are

experienced, but the barometric pressure at any given place does not vary by more than approximately 10mm Mercury. Frequent and severe lightning storms occur during summer months, with isoceraunic levels varying between 50 and 100 thunderstorm days per annum.

It is the manufacturer's responsibility to make himself familiar with any other climatic and physical conditions pertaining in Zimbabwe and to allow for all conditions in his designs.

4 PARTICULARS OF ELECTRICAL SYSTEM

The Galvanised Steel Wire Strands shall be suitable for use on the following electrical system:

- a) outdoor, 3-phase.
- b) operated at 50Hz variable between plus or minus 2.5%.

5. STANDARDS, UNITS AND LANGUAGE

All Galvanised Steel Wire Strands supplied under this specification shall conform to the following:

- a) The latest edition of BS 183:1972 and any amendments of its IEC equivalent.
- b) Any other standard provided the tenderer can provide documentary evidence that the standard is equal to or better than the above.

All tenders, correspondence, and all description upon drawings, illustrations or instruction shall be in the English Language.

SI units of measurements shall be used throughout. The galvanized steel wires shall be manufactured to high quality standards. The companies manufacturing the cables shall have ISO certification. Documentary proof of ISO Certification shall be provided with the bid. The requirements for ISO certification will be waived for local companies, but should have S.A.Z Certification.

6 CONSTRUCTION

6.1 Material of Wire

The wire shall be drawn from steel made by any process, except that the air, and mixed air-oxygen, bottom basic converter shall not be used.

6.2 Galvanising of Wire

Unless otherwise Specified, the galvanized coating shall comply with the requirements of BS 443.

6.3 Freedom from defects

The finished wire shall be free from any harmful defects or kinks

6.4 Joints during wire manufacture

For all other grades there shall be no welds in the wire other than those made in the base rod or wire before drawing. However for grades 350 and 480, welds shall be permitted at the option of the manufacture at any stage prior to galvanising.

6.5 Strand lay

Unless otherwise Specified in the Schedule of requirements, the outer wire of all strands shall have a right-hand lay. In 19 wire strand the outer twelve wires shall be normally laid up in reverse direction to that of the inner layer, but they may be laid-up in the same direction when Specified in the Schedule of requirements.

6.6 General Strand

The lay length of the general strand shall be 12 to 18 times the nominal overall diameter of the strand.

6.7 Joints during stranding

For all other grades, there shall be no welds in the wire other than those made in the base rod or before drawing. However for grades 350 and 480, Welds shall be permitted at the option of the manufacture at any stage prior to galvanising.

For all grades of 19-wire strand, joints in the wire during stranding shall be permitted provided they are kept to a minimum and well spaced. Joints made during stranding shall be protected against corrosion.

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TESTS

The samples of individual coil or drum of strand for the tests shall normally be taken before stranding. The manufacturer shall carry out test on samples taken out at least from 10% of the individual coils. The coils used shall comply with the following tests.

- a) Diameter test, according to BS: 183 clause 8, of which the tolerance shall comply with the values given in Table 1 under clause 8.
- b) Tensile and elongation test, according to BS: 183 clause 9, of which the minimum elongation of the strand shall comply with the values given in table 2 under clause 9.

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GALVANIZED STEEL WIRE STRAND DRUMS

The Galvanised Stranded Steel Wire shall be supplied and delivered on Drums. The flanges and barrels of the drums shall be made entirely of a suitable and seasoned wood which shall be treated. If hardwood use, it shall not form more than 40% of the total weight of wood making up the drum, neither shall it be used on the inside of the flanges and barrels so that it shall not be in contact with the Galvanised Steel Wire Strand. Spindle holes shall not be less than 60mm in diameter. The surrounding of the holes shall be suitably reinforced.

The flanges and barrel shall be free from protruding material capable of Damaging the Galvanised Steel Wire or the hands of operator during Rotation of the drum

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PACKING

The surface of the barrel and the inside of the flanges shall be lined with waterproof paper. The loose end of the Galvanised Stranded Steel Wire Strand shall be firmly stapled to the inside of the flanges. The drum number shall be branded or gauged into the outside of one of the

flanges. An arrow shall indicate the direction in which the drum shall be rolled. A label showing size, type and length of Galvanised Steel Wire Strand shall be firmly secured to the outside of one of the flanges. The label shall be suitably weatherproofed

10 MARKING

The following information shall be marked on each Drum

- a) Manufactures' name
- b) Trade mark, if any
- c) Drum or identification number
- d) Size of Galvanised Stranded Steel Wire
- e) Number of Galvanised Stranded Steel Wire
- f) Gross mass of the package
- g) Net mass of Galvanised Stranded Steel Wire
- h) Tender Number and REA order Number

11 TECHNICAL GUARANTEE SCHEDULE

11.1 PREAMBLE

- a) The Technical schedule shall be filled in and completed by the Bidder, and submitted with the Bid.
- b) All documentation necessary to evaluate whether the equipment offered is in accordance with this specification shall be submitted with the Bid.
- c) All data entered in the schedules of Technical Guarantees are guaranteed values by the Bidder and cannot be departed from whatsoever.
- d) All data entered in the schedules of informative Data are also guaranteed values by the Bidder. These data may only be altered following the Engineer's written consent.

TABLE A

TECHNICAL GUARANTEES (to be filled in by Bidder for each type)		
Description	Unit	Guarantee
Reference standards	-	
Type designation	-	
Grade of galvanized steel wire		
Size of Galvanised Steel Wire	sq.mm	
Number and length of Galvanised Stranded Steel Wire		
Size of each strand	sq.mm	
Overall diameter	mm	
Gross Mass of package	kg/km	
Net Mass of Galvanised Steel Wire	kg/km	
Manufacture's name		
Country of manufacture		
Trade mark		
Drum or Identification number		

Where necessary, documentation to evaluate whether the equipment offered is in accordance with this specification shall be submitted with the Bid'.

Tenderer's Signature _____