



CORPORATE PURCHASING SPECIFICATION

AA 103 11

Rev. No. 04

PREFACE SHEET

TINNED STEEL BANDING WIRE - MAGNETIC

FOR INTERNAL USE ONLY
 REMOVE THIS PREFACE SHEET BEFORE ISSUE TO SUPPLIERS

Comparable Standards:

1. INDIAN : IS : 8510, part 2 -1977. Magnetic

Suggested/Probable Suppliers And Grades:

Refer plant vendors list.

User Plant References:

1. BHOPAL : PS 102 14.

Revisions : Cl. 32.6.3 of MOM of MRC-S&GPS			APPROVED : INTERPLANT MATERIAL RATIONALISATION COMMITTEE-MRC (S&GPS)		
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TINNED STEEL BANDING WIRE - MAGNETIC

1.0 GENERAL:

This specification governs the quality of requirements of Magnetic, High tensile, Tinned steel banding wire.

2.0 APPLICATION:

Banding of armatures and rotors of Electrical machines.

3.0 CONDITION OF DELIVERY:

Wire shall be smoothly coated with tin so as to facilitate soldering. The amount of coating shall be such as to solder readily and shall not peel off in passing through the normal tension devices.

The wire shall be supplied in the form of coils of continuous lengths of not less than 350 metres.

4.0 COMPLIANCE WITH NATIONAL STANDARDS:

The material shall comply, in general, with requirements of the following National standards and also meet the requirements of this specification.

IS: 8510, part 2 – 1977, Magnetic : Tinned Steel Wire for banding of armatures and rotors.

5.0 DIMENSIONS AND TOLERANCES :

5.1 Sizes:

The diameter and length (or number of coils) of wire shall be stated in BHEL order.

5.2 Tolerances:

The tolerances on diameter shall be $\pm 2.0\%$ of the nominal diameter with a minimum of ± 0.025 mm.

6.0 MANUFACTURE:

Wire shall be drawn from steel manufactured by open hearth, electric, basic oxygen or a combination of these processes. If any other process is employed, prior approval of BHEL shall be obtained.

Revisions:

Cl. 32.6.3 of MOM of MRC-S&GPS

APPROVED:

INTERPLANT MATERIAL RATIONALISATION
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7.0 FREEDOM FROM DEFECTS:

7.1 Wire:

All wires shall be well and cleanly drawn to the dimensions specified and shall be free from splits, surface flaws, rough/jagged edges and any other harmful surface defects.

7.2 Tin Coating:

Tin coating shall be smooth, bright and continuous.

7.3 Coated Wire:

The coated wire shall be free from rust spots and other harmful defects.

8.0 TEST SAMPLES:

The test samples shall be selected and prepared in accordance with Appendix A of IS:8510, Part 1.

9.0 CHEMICAL COMPOSITION:

The melt analysis of steel and the permissible variation in the composition of the material from the melt analysis shall be as follows:

Element	Melt analysis,		Permissible variation percent
	% min.	% max.	
Carbon	0.60	0.85	± 0.04
Silicon	0.10	0.35	± 0.03
Manganese	0.50	0.80	± 0.04
Sulphur	-	0.040	+ 0.005
Phosphorus	-	0.040	+ 0.005

10.0 MECHANICAL PROPERTIES:

10.1 Tensile:

When tested in accordance with IS: 1608, all wires shall show the following properties:.

Tensile strength : 1760 N/mm², min.

Proof stress at 2% permanent elongation : 1280 N/mm², min.

Note: Alternatively the stress at 1% elongation shall be 1280 N/mm², min.

10.2 Wrapping:

When tested in accordance with IS:1755, the wire shall not show cracking or splitting after tightly wrapping for 8 complete turns around an arbour of 3 times the diameter of the wire.

**10.3 Coating:****10.3.1 Adhesion of tin coating:**

The coating shall not come off when the wire is wound 6 times in a spiral over a rod of diameter 4 times diameter of the wire. The test shall be carried out as per IS:1755.

10.3.2 Thickness of tin coating:

At any point of the wire, the thickness of tin coating shall not be less than 8 microns.

11.0 INSPECTION AT SUPPLIER ' WORKS:

When ever specified tests and inspection are to be conducted in the presence of BHEL's representative.

The supplier shall offer BHEL's representative all reasonable facilities, without charge to satisfy the latter that the material is being furnished in accordance with this specification. The supplier shall prepare and provide necessary test specimens for testing to be carried out at his premises. If facilities are not available at his works, the supplier shall make necessary arrangements for carrying out the prescribed test elsewhere. The supplier shall notify BHEL in advance about the readiness of the material for inspection and testing.

BHEL reserves the right to test the material at BHEL's works and the final acceptance of the material shall be based on these test results.

12.0 TEST CERTIFICATES :

Three copies of test certificates shall be supplied, unless otherwise stated on the order. In addition, to the above, the supplier shall ensure to enclose one copy of the test certificate along with their despatch documents to facilitate quick clearance of the material.

The test certificate shall bear the following information:

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BHEL order No,

Supplier's Reference :

Name

Identification No.

Melt No.

Lot No.

No. of coils

Size and weight

Results of Tests :

Dimensional inspection

Results of chemical and mechanical tests.

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13.0 PACKING AND MARKING :

The wires shall be supplied in coils of continuous lengths of not less than 350 metres. Each coil shall be suitably bound and fastened and wrapped in protective covers. The coils shall be suitably packed to prevent corrosion and damage during transit.

A metal label shall be securely attached to each coil and shall bear the following information:

AA 10311: Tinned steel banding wire - Magnetic
 BHEL Order No.
 Consignment/Identification No.
 Melt No
 Size and Weight.
 Supplier's Name

14.0 REFERRED STANDARDS (Latest Publications Including Amendments):

- 1) IS:1608 2) IS:1755 3) IS:8510, part 1 & 2