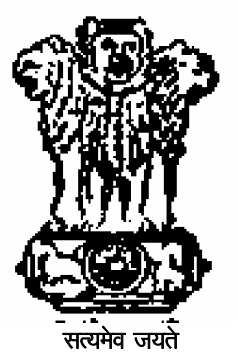

INDIAN RAILWAY

STANDARD SPECIFICATION

FOR

CHANNEL PINS
(For Bonding Track Circuiting Wires)

SPECIFICATION NO. IRS: S 17-75
Revision 3

(Number of pages 10)

SIGNAL DIRECTORATE
RESEARCH DESIGNS & STANDARDS ORGANISATION
LUCKNOW-226011

DOCUMENT DATA SHEET

DESIGNATION **IRS: S 17-75**		**Revision** **3**
TITLE OF DOCUMENT **Indian Railways Standard Specification for CHANNEL PINS** (For Bonding Track Circuiting Wires)		
Authors **Director/ Signal/ RDSO**		
Approved by **Sr. Executive Director/ Signal, RDSO**		

Abstract

This document specifies the technical requirements for single groove channel pins.

DOCUMENT CONTROL SHEET

NAME	ORGANIZATION	FUNCTION	LEVEL
Director/ Signal	**RDSO**	**Member**	**Prepare**
Sr. Executive Director/ Signal	**RDSO**	**-**	**Approve**

Converted into electronic form on Nov 2008

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Asstt. Design Engineer

AMENDMENTS

Version	Chapter/ Annexure	Amendment	Effective date
IRS: S 17-51		FIRST ISSUE	1951
IRS: S 17-58		Revision 1	1958
IRS: S 17-62		Revision 2	1962
IRS: S 17-75		Revision 3	1975
IRS: S 17-75		Amendment 1	Nov 1983

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Government of India **IRS:S 17-75**
Ministry of Railways
(Railway Board)

INDIAN RAILWAY

STANDARD SPECIFICATION

for

CHANNEL PINS

(For Bonding Track Circuiting Wires)

Serial No. S 17-75

0. FOREWORD

0.1 This specification is issued under the fixed serial number S 17 the final number indicates the year of original adoption as standard, or in case of revision, the year of last revision.

ADOPTED, 1951; REVISED, 1958, 1962, 1975

0.2 This specification requires reference to following Indian Standard (IS) specifications:

IS: 209	….Zinc
IS: 226	…Structural steel (standard quality)
IS: 1573-70	…Electroplated coatings for Zinc or Iron and steel
IS: 2073-70	…Carbon steel Black Bars for Production of Machined Parts for General Engineering Purposes.
IS: 4759-68	…Hot-Dip Zinc Coatings on Structural Steel and other Allied products.

0.3 Whenever, reference to any specification appears by number only in this specification, it shall be taken as a reference to the latest version on that specification.

0.4 This specification is intended chiefly to cover the technical provisions and does not include all the necessary provisions of a contract.

1. SCOPE

1.1 This specification lays down the requirements and tests for single groove channel pins, hereinafter called pins, for use in track circuit bonding.

2. GENERAL REQUIREMENTS

2.1 The pins shall be manufactured in accordance with the drawings approved by the purchaser.

2.2 The pins shall be made of mild steel conforming to either grade C 14 of IS: 2073* or IS : 226**.

2.3 The pins shall be coated with zinc or tin or copper by either hot dip or electroplating process. The coating shall be smooth, free from lumps and of even thickness.

2.3.1 Zinc conforming to grade zn.99.5 specified in IS: 209-1966$ shall be used for the purpose of zinc coating.

2.3.2 Tin plating on the pins shall contain not less than 98% of pure tin.

2.3.3 Copper plating on the pins shall contain not less than 99.5% of pure copper.

2.4 The pins shall be manufactured in accordance with best current engineering practices.

3. TESTS

3.1 Visual inspection – The pins shall be visually inspected to check conformity with the requirements given in clause 2 of this specification.

3.2 Tests for protective coatings -

3.2.1 Test for Zinc coating :

3.2.1.1 Hot Dip coating – The coating shall comply with the requirements laid down in IS: 4759.68++. The weight of the coating shall not be less than 610 g/m^2.

3.2.1.2 Electroplated coating – The coating shall comply with service condition no. 4 and classification no. Fe Zn 40 of IS: 1573-70!!.

* Carbon steel Black bars for production of mechined parts for general engineering purposes.
** Structural steel (standard quality)
$ Zinc
++ Hot dip zinc coatings on structural steel and other allied products.
!! Electroplated coatings for zinc on iron and steel.

3.2.2 Test for Tin coating -

3.2.2.1 Potassium ferro cyanide solution shall be made by dissolving 5g of the salt in 1000ml of distilled water. In absence of distilled water hydrant water may be used if on adding the salt it does not give a precipitate or dis-colouration. In addition, a solution of dilute hydrochloric acid having a

specific gravity of 1.10 shall be prepared by diluting hydrochloric acid having a specific gravity of 1.20 with distilled water.

3.2.2.2 The pins selected for test shall be thoroughly cleaned with gasoline or varnish remover and then with soap and water. The pins shall be immersed in the hydrochloric acid solution for one minute, and without wiping shall then be dipped into the ferrocyanide solution. The pins shall then be washed with clear water to remove any trace of ferrocyanide solution and the above operation repeated.

3.2.2.3 The pins shall withstand four immersions of one minute each in the hydrochloric acid solution without showing a blue precipitate or discolouration in the ferrocyanide solution.

3.2.3 Test for Copper coating -

3.2.3.1 Potassium ferrocyanide solution shall be made in accordance with clause 3.2.2.1. In addition, nitric acid solution shall be made by diluting 10ml of concentrated nitric acid in 90ml of distilled water.

3.2.3.2 The pins selected for test shall be thoroughly cleaned with gasoline or varnish remover and then with soap and water. The pins shall be immersed in the nitric acid solution for one minute, and without wiping shall then be dipped into the ferrocyanide solution. The pins shall then be washed with clear water to remove any trace of ferrocyanide solution and the above operation repeated.

3.2.3.3 The pins shall withstand four immersions of one minute each in the nitric acid solution without showing a blue precipitate or discolouration in the ferrocyanide solution.

3.3 Performance tests

3.3.1 Driving Test – The pins shall withstand being driven entirely through a 7mm dia hole without showing a flaw or crack. The hole shall be drilled in a piece of steel plate 14mm thick.

3.3.2 Bending Test – The pins after being driven through the steel plate mentioned in clause 3.3.1 to half the length of the pins shall withstand bending at the large end 90^{o} flat on plate side-wise to the groove without showing a flaw or crack.

4. SAMPLING

4.1 Visual inspection shall be carried out in accordance with sampling plan given in Appendix ‘A’.

4.2 A minimum of 5 samples, which have passed visual inspection, shall be selected for test for protective coating (clause 3.2) and each of the performance tests (clause 3.3).

4.2.1 Not more than one sample shall fail in any of the above tests. In the event of failures not exceeding two each in the tests, purchaser or his nominee may at his discretion call for another 5 samples for the test (s) in which failure (s) took place. The samples shall be retested. Not more than one failure shall be permitted in the repeat test (s).

5. PACKING

5.1 The channel pins shall be suitably packed in packages containing 100 or 200 pins each. The packing shall be such as to permit convenient, handling and to protect against loss or damage during transit and storage. The packages shall bear a label which shall indicate the purchase order number, name and address of the manufacturer and the contents.

APPENDIX 'A'

(Cluase 4.1)

SAMPLING PROCEDURE FOR VISUAL INSPECTION TEST

A-1 LOT

A-1.1 In any consignment, all the pins manufactured by the same factory during the same period and provided with same type of coating shall be grouped together to constitute a lot.

A-1.2 From each lot a certain number of pins shall be selected at random and subjected to the visual inspection test specified in clause 3.1. Any pin failing to satisfy the requirements of the clause shall be considered as defective.

A-2 CRITERION FOR CONFORMITY

A-2.1 The number of pins to be selected shall be in accordance with Table-I. The lot shall be accepted if the number of defective pins in the sample is equal to the acceptance number or less; otherwise the lot shall be rejected.

TABLE-I

Lot size	Sample size	Acceptance No.
Upto 100	5	1
101-150	8	2
151-300	13	3
301-500	20	5
501-1000	32	7
1001-3000	50	10
3001-10000	80	14
10001 and above	125	21

AMENDMENT NO. 1 OF NOVEMBER 1983

To

INDIAN RAILWAY

STANDARD SPECIFICATION

For

CHANNEL PINS

Serial No. S:17-75

(Page 4, Clause 5.1) – Substitute the following for the existing clause.

Clause 5.1

The channel pins shall be suitably packed in packages. The packing shall be such as to permit convenient handling and to protect against loss or damage during transit and storage. The packages shall bear a label which shall indicate the name and address of the manufacturer, the contents and the quantity.

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