*भारतीय मानक* **IS 4462 : 2024**

***Indian Standard***

# वस्त्रादि — जूट बुनाई के लिए संपर्क वायर हील्ड्स — विशिष्टि

*( दूसरा पुनरीक्षण )*

# Textiles — Contact Wire Healds for Jute Weaving — Specification

*( Second Revision )*

ICS 59.120.30



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**September 2024** **Price Group 4**

Textile Machinery and Accessories Sectional Committee, TXD 14

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Textile Machinery and Accessories Sectional Committee had been approved by the Textiles Division Council.

Contact wire healds are used in jute weaving to lead the warp yarns in a lifting motion, forming a weaving shed for weft yarns to be brought in.

This standard was first published in 1967 and subsequently revised in 1974. The following major modifications have been incorporated in this revision of the standard:

a) Forward has been incorporated;

b) Marking clause has been modified;

c) Sampling clause has been incorporated; and

d) References to Indian Standards have been updated.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

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, shall be rounded off in accordance with IS 2 : 2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

*Indian Standard*

# TEXTILES — CONTACT WIRE HEALDS FOR JUTE WEAVING — SPECIFICATION

*( Second Revision )*

## 1 SCOPE

This standard prescribes the requirements of contact wire healds used in jute weaving (jute carpet backing, for example).

## 2 REFERENCES

The standards given below contain provisions which, through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent edition of these standards:

| *IS No.* | *Title* |
|---|---|
| IS 193 : 2024/ ISO 9453 : 2020 | Soft solder alloys — Chemical compositions and forms — Specification (*sixth revision*) |
| IS 1570 (Part 2) : 1979 | Schedules for wrought steels — Part 2: Carbon steels (unalloyed steels) |
| IS 1608 (Part 1) : 2022/ ISO 6892-1 : 2019 | Metallic materials — Tensile testing: Part 1 Method of test at room temperature (*fifth revision*) |
| IS 2500 (Part 1) : 2000/ ISO 2859-1 : 1999 | Sampling procedures for inspection by attributes: Part 1 Sampling schemes indexed by acceptance quality limit (AQL) for lot-by-lot inspection (*third revision*) |

## 3 MATERIALS

### 3.1 Wire

Bright, hardened and tempered steel wire with carbon content 0.50 percent to 0.60 percent [*see* C55 Mn75 steel in IS 1570 (Part 2)] with the single-wire tensile strength of 110 kgf/mm$^2$ (1080 MPa), *Min* [as determined in accordance with IS 1608 (Part 1)].

### 3.2 Mail

Hardened and tempered high-carbon, grooved steel wire or strip.

### 3.3 Flat Strip

Flat strip are hardened high-carbon steel sheet.

### 3.4 Solder

Grade Sn 60 or higher of IS 193 shall be used for soldering the flat strips of end-loops and mail to the wire.

## 4 SHAPE AND DIMENSIONS

**4.1** Shape and dimensions of typical contact wire healds for jute weaving shall be as shown in Fig. 1.

**4.2** Tolerance on thickness shall be ± 0.015 mm.

NOTE — Heald wire of 0.900 mm ± 0.015 mm diameter may be used at the option of the purchaser.

## 5 WORKMANSHIP

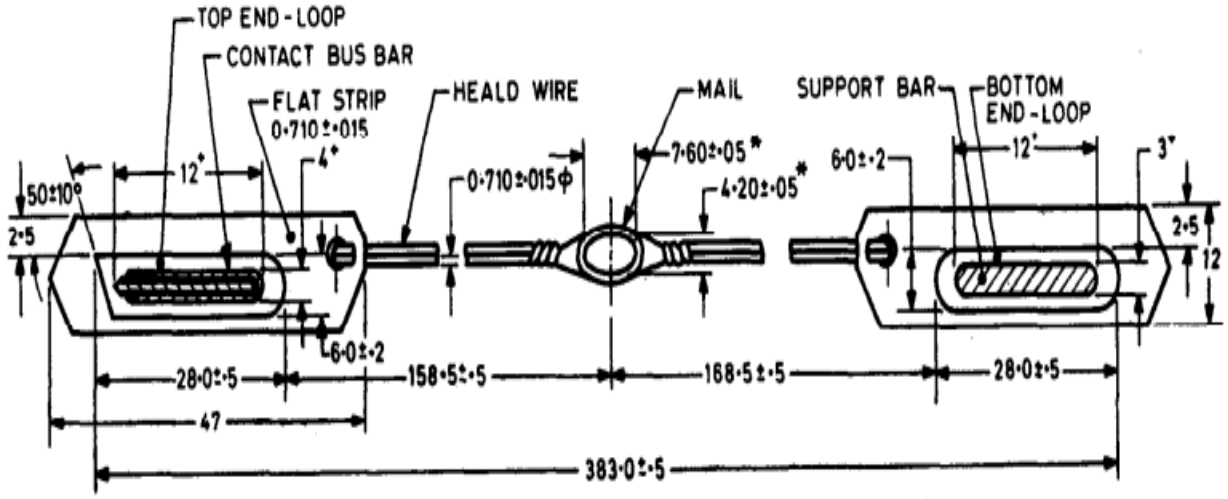
Both the end-loops should be in the same plane. When the wire heald is held vertical with the top end upward the minor axis of the mail shall be in the ‘S’ direction as shown in Fig. 2.

**5.1** The mail shall be oval in shape (*see* Fig. 1) and grooved at its periphery.

**5.1.1** The mail eye should be perfectly smooth.

### 5.2 Plating

The heald wire shall be plated with commercially pure tin of 95 percent purity and the plated surface should be lustrous, smooth and free from cracks and other such flaws likely to cause yarn breakage. However, the grooves formed by two adjoining wires should be smooth and regular.




All dimensions in millimetres.

FIG. 1 TYPICAL CONTACT WIRE HEALD FOR JUTE WEAVING

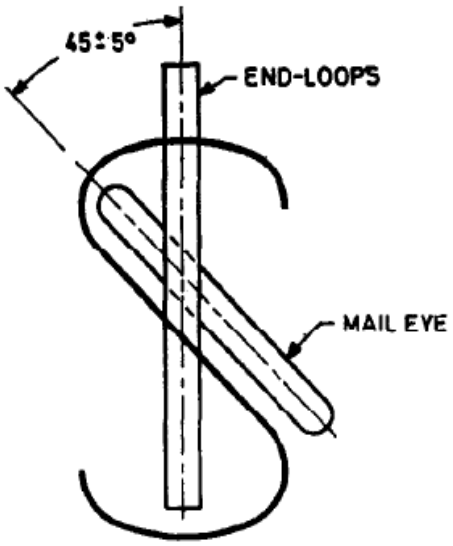



FIG. 2 DIRECTION OF MAIL EYE

## 6 BREAKING STRENGTH

Breaking strength shall be 50 kgf, Min, when all the joints of the contact wire heald are subjected to a stress in a tensile strength tester at the rate of traverse 450 mm/min.

## 7 SAMPLING

**7.1** All the contact wire healds manufactured from the same raw material delivered to a buyer against a despatch note shall constitute a lot.

**7.2** The conformity of the lot to the requirements of this standard shall be determined on the basis of the tests carried out on the samples selected from it.

**7.3** Unless otherwise agreed to between the buyer and the seller, the number of contact wire healds to be selected at random from a lot shall be in accordance with co1 (2), col (3) and col (5) of Table 1 [*see also* IS 2500 (Part 1)].

**Table 1 Sample Size and Permissible Number of Non-Conforming Contact Wire Healds**

(*Clause* 7.3)

| Sl No. | Lot Size | No. of Contact Wire Healds to be Selected for Testing Dimensions | Permissible No. of Non-conforming Contact Wire Healds amongst those Selected in Col (3) | No. of Contact Wire Healds to be Selected for Determining Mass from amongst those Selected in Col (3) |
|---|---|---|---|---|
| (1) | (2) | (3) | (4) | (5) |
| i) | Up to 150 | 8 | 1 | 3 |
| ii) | 151 to 280 | 13 | 1 | 3 |
| iii) | 281 to 500 | 20 | 2 | 3 |
| iv) | 501 and above | 32 | 3 | 5 |

**7.4** The number of contact wire healds to be tested and criterion for conformity for each of the characteristics shall be as follows:

| *Sl No.* | *Characteristic*(*s*) | *No. of Contact Wire Healds to be Tested* | *Criterion for Conformity* |
|---|---|---|---|
| (1) | (2) | (3) | (4) |
| i) | Dimensions | According to col (3) of Table 1 | Non-Conforming healds not to exceed the corresponding number given in co1 (4) of Table 1 |
| ii) | Material and All other requirements | According to co1 (5) of Table 1 | Each observed value satisfies the requirements |

## 8 MARKING

**8.1** Each bundle or package or both shall bear the following:

a) Number of healds in the bundle or package;

b) Manufacturers' name, trade-mark or initials; and

c) Date of manufacture.

### 8.2 BIS Certification Marking

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

## 9 PACKING

After a suitable rust preventive has been applied on the contact wire healds, the healds shall be threaded through end-loops by a cotton thread of adequate strength, to form a bundle; the bundles then packed into polyethylene bags to form a package.

## ANNEX A

(*Foreword*)

## COMMITTEE COMPOSITION

Textile Machinery and Accessories Sectional Committee, TXD 14

| *Organization* | *Representative*(*s*) |
|---|---|
| Central Manufacturing Technology Institute, Bengaluru | DR NAGAHANUMAIAN **(*Chairperson*)** |
| ATE Enterprises Private Limited, New Delhi | SHRI ABHIJIT KULKARNI<br>SHRI ANIL KUMAR SHARMA (*Alternate*) |
| Bajaj Industries Private Limited, Kolkata | REPRESENTATIVE |
| Bhowmick Calculator, Kolkata | SHRI GOUTAM BHOWMICK<br>SHRI VIVEKANANDA BHOWMICK (*Alternate*) |
| Bombay Textile Research Association, Mumbai | SHRI VIJAY GAWDE<br>SHRI R. A. SHAIKH (*Alternate*) |
| Central Manufacturing Technology Institute, Bengaluru | SHRI B. R. MOHANRAJ<br>SHRI K. SARAVANAN (*Alternate*) |
| Confederation of Indian Textile Industry, New Delhi | SHRIMATI CHANDRIMA CHATTERJEE<br>SHRI ANMOL GUPTA (*Alternate*) |
| ICAR - Central Institute for Research on Cotton Technology, Mumbai | DR N. SHANMUGAM<br>DR T. SENTHIL KUMAR (*Alternate*) |
| India ITME Society, Mumbai | SHRI S. SENTHIL KUMAR<br>SHRIMATI SEEMA SRIVASTAVA (*Alternate*) |
| Indian Jute Industries Research Association, Kolkata | SHRIMATI SAUMITA CHOUDHURY<br>SHRI PARTHA SANYAL (*Alternate*) |
| Indian Jute Mills Association, Kolkata | SHRI BHUDIPTA SAHA<br>SHRI TANMOY SINGHA (*Alternate*) |
| Indian Textile Accessories and Machinery Manufacturers Association, Mumbai | SHRI N. D. MHATRE<br>SHRI CHANDRESH SHAH (*Alternate*) |
| Inspiron Engineering Private Limited, Ahmedabad | SHRI ANKUR SONI |
| Kusters Calico Machinery Limited, Karjan | SHRI DEVANG PARIKH<br>SHRI SHUBHASIS SUR (*Alternate*) |
| Lagan Engineering Company Limited, Kolkata | REPRESENTATIVE |
| Lakshmi Machine Works Limited, Coimbatore | SHRIMATI KALPANA A.<br>SHRIMATI DIVYA V. (*Alternate*) |

| *Organization* | *Representative(s)* |
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| Ludlow Jute Limited, Kolkata | REPRESENTATIVE |
| Ministry of Heavy Industries and Public Enterprises, Department of Heavy Industry, New Delhi | SHRI SANJEEV GUPTA<br>SHRI S. SUNDAR (*Alternate*) |
| National Safety Council, Navi Mumbai | SHRI LALIT R. GABHANE<br>SHRI R. R. DEOGHARE (*Alternate*) |
| Office of the Textile Commissioner, Mumbai | SHRI N. K. SINGH<br>SHRI NAROTTAM KUMAR (*Alternate*) |
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| Synthetic and Art Silk Mills Research Association, Mumbai | DR MANISHA MATHUR<br>SHRI SANJAY SAINI (*Alternate*) |
| Truetzschler India Private Limited, Ahmedabad | SHRI PRAVIN KANDGE<br>SHRI SHILADITYA JOSHI (*Alternate*) |
| Veermata Jijabai Technological Institute, Mumbai | DR SURANJANA GANGOPADHYAY<br>DR S. P. BORKAR (*Alternate*) |
| BIS Directorate General | SHRI J. K. GUPTA, SCIENTIST 'E'/DIRECTOR AND HEAD (TEXTILES) [REPRESENTING DIRECTOR GENERAL (*Ex-officio*)] |

*Member Secretary*
SHRI SWAPNIL
SCIENTIST 'B'/ ASSISTANT DIRECTOR
(TEXTILES), BIS

**Bureau of Indian Standards**

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This Indian Standard has been developed from Doc No.: TXD 14 (24785).

## Amendments Issued Since Publication

| Amend No. | Date of Issue | Text Affected |
|---|---|---|
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