



**उत्पाद मैनुअल**  
**केबल प्रबंधन - केबल ट्रे प्रणालियाँ और केबल सीढ़ी प्रणालियाँ**  
**IS/IEC 61537: 2023 के अनुसार**

**PRODUCT MANUAL**  
**Cable Management — Cable Tray Systems and Cable Ladder Systems**  
**according to IS/IEC 61537: 2023**

यह उत्पाद नियमावली सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसधारियों द्वारा विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना-1 के अंतर्गत प्रमाणन के संचालन में एकरूपता और पारदर्शिता सुनिश्चित करने के लिए संदर्भ सामग्री के रूप में उपयोग की जाएगी। बीआईएस प्रमाणन प्राप्त करने के इच्छुक भावी आवेदक भी इस दस्तावेज़ का उपयोग कर सकते हैं।

*This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure uniformity of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification.*

|    |                                                                                             |   |                                                                                                                                                                                                                                                     |
|----|---------------------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | मानक संख्या / IS No.                                                                        | : | IS/IEC 61537: 2023                                                                                                                                                                                                                                  |
|    | शीर्षक / Title                                                                              | : | Cable Management — Cable Tray Systems and Cable Ladder Systems                                                                                                                                                                                      |
|    | संशोधनों की संख्या<br>No. of amendments                                                     | : | Nil                                                                                                                                                                                                                                                 |
| 2. | नमूनाकरण दिशानिर्देश / Sampling Guidelines                                                  |   |                                                                                                                                                                                                                                                     |
| a) | कच्चा माल<br>Raw material                                                                   | : | System component as per cl.6.5<br><i>Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/Factory Surveillance.</i> |
| b) | समूहीकरण दिशानिर्देश<br>Grouping Guidelines                                                 | : | Please refer <a href="#">ANNEX – A</a>                                                                                                                                                                                                              |
| c) | नमूने का परिमाण / Sample Quantity                                                           | : | 3 m x 3pc for each Cable tray (or) Cable ladder system along with applicable system components and fittings                                                                                                                                         |
| d) | परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर / Parameters to be Declared in Test Request | : | As given in scope of licence<br><i>Note: Apart from the above, any other requirements/ parameters may also be declared as per the standard, as applicable.</i>                                                                                      |
| 3. | परीक्षण उपकरण की सूची<br>List of Test Equipment                                             | : | Please refer <a href="#">ANNEX – B</a>                                                                                                                                                                                                              |
| 4. | निरीक्षण एवं परीक्षण योजना<br>Scheme of Inspection and Testing                              | : | Please refer <a href="#">ANNEX – C</a>                                                                                                                                                                                                              |

**BUREAU OF INDIAN STANDARDS**  
**MANAK BHAVAN, 9, BAHADUR SHAH ZAFAR MARG, NEW DELHI-110002**  
**www.bis.gov.in**

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|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 5.                                                                                                  | एक दिन में संभावित परीक्षण<br>Possible tests in a day | :                                                                                                                                           | <ul style="list-style-type: none"><li>• Marking and documentation</li><li>• Dimensions</li><li>• Constructions</li><li>• Electrical continuity</li><li>• Spread of fire</li></ul> <p><i>Note: This section is for the guidance of BIS Certification Officers/ Technical Auditors of BIS Authorized Outside Surveillance Agencies(OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/ auditor.</i></p> |
| 6.                                                                                                  | लाइसेंस का दायरा /Scope of the Licence:               |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| “Licence is granted to use Standard Mark as per <b>IS/IEC 61537: 2023</b> with the following scope: |                                                       |                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Name of the Product                                                                                 |                                                       | Cable Tray System (and) / (or) Cable Ladder System                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Dimension(s)                                                                                        |                                                       | To be declared by the manufacturer as per Cl. 8 of IS / IEC 61537: 2023                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| SWL<br>(Safe Working Load)                                                                          |                                                       | To be declared by the manufacturer                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Material                                                                                            |                                                       | Metallic system component / Non-metallic system component / Composite system component                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Resistance to flame propagation                                                                     |                                                       | Flame propagating system component / Non-flame propagating system component                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Electrical continuity characteristics                                                               |                                                       | With / without electrical continuity characteristics/ with electrical continuity characteristics and with Protective Earthing (PE) function |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Electrical conductivity                                                                             |                                                       | Electrically conductive system component / Electrically non-conductive system component                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Resistance against corrosion                                                                        |                                                       | To be declared by the manufacturer as per cl.6.5                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Impact resistance                                                                                   |                                                       | System component offering impact resistance upto 2 J / upto 5 J/ upto 10 J/ upto 20 J/ upto 50 J                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Temperature for use                                                                                 |                                                       | Min. temp for use (+5 / -5 / -15 / -20 / -25/ -40 / -50/ -70) °C<br>Max. temp for use (+40 / +60 / +90 / +105 / +120 / + 150)°C             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Perforation in the base area                                                                        |                                                       | A / B / C / D<br>(See Table 5 of IS / IEC 61537: 2023)                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Free base area                                                                                      |                                                       | X / Y / Z<br>(See Table 6 of IS / IEC 61537: 2023)                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

## **ANNEX -A** **Grouping Guidelines**

1. Cable Management — Cable Tray Systems and Cable Ladder Systems as per of IS / IEC 61537 are classified based on the following:
  - i. Product – Cable Tray System (or) Cable Ladder System
  - ii. SWL (in N/m): To be declared by the manufacturer
  - iii. Dimension: To be declared by the manufacturer as per Cl. 8 of IS / IEC 61537: 2023
  - iv. Material: Metallic system component / Non-metallic system component / Composite system component
  - v. Resistance to flame propagation: Flame propagating system component / Non-flame propagating system component
  - vi. Electrical continuity characteristics: With / without electrical continuity characteristics/ with electrical continuity characteristics and with Protective Earthing (PE) function
  - vii. Electrical conductivity: Electrically conductive system component / Electrically non-conductive system component
  - viii. Resistance against corrosion: To be declared by the manufacturer as per cl.6.5
  - ix. Impact resistance: System component offering impact resistance - Upto 2 J / Upto 5 J/ Upto 10 J/ Upto 20 J/ Upto 50 J
  - x. Temperature for use: Min. temp for use (+5 / -5 / -15 / -20 / -25/ -40 / -50/ -70) °C  
Max. temp for use: (+40 / +60 / +90 / +105 / +120 / + 150) °C
  - xi. Perforation in the base area: A / B / C / D (See Table 5 of IS / IEC 61537: 2023)
  - xii. Free base area: X / Y / Z (See Table 6 of IS / IEC 61537: 2023)
2. For grant of licence/ change in scope of licence, samples of widest and narrowest width shall be tested to cover a range of dimensions, provided all other parameters given at 1 above remains the same.
3. The following relaxation may be given when a variety is tested for all the requirements:
  - a. If product with particular SWL is tested, product with lower SWL may also be covered without further testing &
  - b. If product with particular Impact resistance is tested, product with lower Impact resistance may also be covered without further testing,provided all other parameters given at 1 above remains the same.
4. The Firm shall declare the Varieties and Sizes of various Cables they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.
5. During the operation of the Licence, BO shall ensure that all the Varieties covered in the Licence are tested in rotation to the extent possible.

**Note 1:** Firm shall declare the system components and fittings supplied along with the Cable Tray System (or) Cable Ladder System.

**Note 2:** Firm shall declare the intermediate widths of Cable Tray System (or) Cable Ladder System for which it intends to get a licence.

**Note 3:** Firm shall declare the material of Metallic system component / Non-metallic system component / Composite system component intended for manufacturing Cable Tray System (or) Cable Ladder System.

**ANNEX- B**  
**List of Test Equipments**  
*(Indicative List, For Guidance Only)*

| Sl. No. | Test Equipment        | Tests used in with Clause Reference |                                                                                                                                                                  |
|---------|-----------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |                       | Cl. Ref.                            | Tests                                                                                                                                                            |
| 1.      | Marking               | Cl. 7                               | n-Hexane, Cotton, Water, Test Piston as per figure 2 of ISS                                                                                                      |
| 2.      | Dimensions            | Cl. 8                               | Vernier, Micrometer, Steel Scale, Measuring Tape                                                                                                                 |
| 3.      | Construction          | Cl. 9                               | Screw Gauge, Thread Gauge, Torque Gauge                                                                                                                          |
| 4.      | Mechanical Properties | Cl. 10                              | Loads (weights), UTM (if applicable), Conditioning chamber, Pendulum Hammer for Impact Test                                                                      |
| 5.      | Electrical Properties | Cl. 11                              | Electrical Continuity Tester, Humidity Chamber (Sodium Sulphate/Potassium Nitrate to be mixed in water), Surface Resistivity Meter, Voltmeter, DC Voltage source |
| 6.      | External Influences   | Cl. 14                              | Salt Spray Tester, Coating Thickness meter                                                                                                                       |
| 7.      | Fire Hazards          | Cl. 13                              | Glow Wire Test setup, Flame ignitor, Burner, Rectangular Metal Enclosure as per Figure 57etc.                                                                    |

*The above list is indicative only and may not be treated as exhaustive.*

## **ANNEX C**

### **Scheme of Inspection and Testing**

#### **1. QUALITY ASSURANCE PLAN**

1.1 It is expected that during operation of BIS licence manufacturers will implement a Quality Assurance Plan (QAP) i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or sub-contracting/ sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

##### **1.3 Recommended Levels of Control/ Control Unit:**

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: *Cable Tray (or) Cable ladder systems manufactured continuously in a day under similar condition of production for each width* shall constitute a control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan.

1.4 However, all manufacturers shall ensure compliance of their product to all the requirements of the Indian Standard.

#### **2. ENSURING COMPLIANCE THROUGH TESTING**

The manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
  - a) BIS recognised/ empanelled laboratories, or
  - b) Any accredited laboratory as per ISO/IEC 17025

**2.1 Test Records-** The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for

inspection by BIS.

### 3. PACKING AND MARKING

The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each length of Cable Tray System (or) Cable Ladder System and also on the packaging of system components and fittings supplied along with the Cable Tray System (or) Cable Ladder System provided always that the material so marked conforms to each requirement of the specification.

3.1 Packing and Marking shall be done as per Cl.7 of IS/IEC 61537: 2023.

3.2 **Additional Marking requirements:** The product shall also be marked with the following additional requirement on the packaging:

a) "For BIS certification details please visit [www.bis.gov.in](http://www.bis.gov.in)"

### 4. REJECTION

The production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

**TABLE-1**

(Recommended Levels of Control by BIS- for Guidance Only)

(Recommended Levels of Control by BIS for Guidance Only)

| -1           |                                                                                        |                |                | -2                |                                                                                                                                                                                                                                      |                                                                                 |
|--------------|----------------------------------------------------------------------------------------|----------------|----------------|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Test Details |                                                                                        |                |                | Levels of Control |                                                                                                                                                                                                                                      |                                                                                 |
| Cl.          | Requirement                                                                            | Test           |                | No. of Sample     | Frequency                                                                                                                                                                                                                            | Remarks                                                                         |
|              |                                                                                        | Clause         | Ref            |                   |                                                                                                                                                                                                                                      |                                                                                 |
| 6            | Metallic system component / Non-metallic system component / Composite system component | 6.5            | IS / IEC 61537 | One               | Each Consignment                                                                                                                                                                                                                     | No further testing is required if accompanied with ISI mark or Test certificate |
| 7            | Marking and documentation                                                              |                |                |                   |                                                                                                                                                                                                                                      |                                                                                 |
| 7.1          | Marking & Durability of Marking                                                        | 7.1.1<br>7.1.2 | IS / IEC 61537 | Each              | Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity. |                                                                                 |
| 7.2          | Documentation                                                                          | 7.2            |                |                   |                                                                                                                                                                                                                                      |                                                                                 |
| 7.3          | PE marking and documentation                                                           | 7.3            |                |                   |                                                                                                                                                                                                                                      |                                                                                 |
| 8            | Dimensions                                                                             | 8              | IS / IEC 61537 | Each              | Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity. |                                                                                 |
| 9            | Construction                                                                           | 9.1 to 9.7     | IS / IEC 61537 | One               | Each Control unit                                                                                                                                                                                                                    |                                                                                 |
| 10           | Mechanical Properties                                                                  |                |                |                   |                                                                                                                                                                                                                                      |                                                                                 |
| 10.1         | Mechanical Strength                                                                    |                |                |                   |                                                                                                                                                                                                                                      |                                                                                 |

|          |                                                                                                                                                |                            |                |     |                                                                                                                        |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------|-----|------------------------------------------------------------------------------------------------------------------------|
|          | Test for SWL of cable tray lengths and cable ladder lengths mounted in the horizontal plane running horizontally on multiple spans             | 10.3                       | IS / IEC 61537 | One | Once in a month for each type of Cable Tray (or) Cable ladder systems of any dimension manufactured during that period |
|          | Test for SWL of cable tray lengths and cable ladder lengths mounted in the horizontal plane running horizontally on a single span installation | 10.4                       | IS / IEC 61537 |     |                                                                                                                        |
|          | Test for SWL of cable tray system and cable ladder system mounted in the vertical plane running horizontally                                   | 10.5                       | IS / IEC 61537 |     |                                                                                                                        |
|          | Test for SWL of cable tray system and cable ladder system mounted in the vertical plane running vertically                                     | 10.6                       | IS / IEC 61537 |     |                                                                                                                        |
|          | Test for SWL of cable tray fittings and cable ladder fittings mounted in the horizontal plane running horizontally                             | 10.7                       | IS / IEC 61537 |     |                                                                                                                        |
| 10.2     | SWL Test                                                                                                                                       |                            |                |     |                                                                                                                        |
| 10.2.1.1 | Minimum temperature test                                                                                                                       | 10.2.1.1                   | IS / IEC 61537 | One | Once in a month for each type of Cable Tray (or) Cable ladder systems of any dimension manufactured during that period |
| 10.2.1.2 | Maximum temperature test for temperatures ≤ 60°C (or)                                                                                          | 10.2.1.2                   |                |     |                                                                                                                        |
| 10.2.1.3 | Maximum temperature test for temperatures > 60°C                                                                                               | 10.2.1.3                   |                |     |                                                                                                                        |
| 10.8     | Test for SWL of support devices                                                                                                                | 10.8                       | IS / IEC 61537 | One | Once in a month for each type of Cable Tray (or) Cable ladder systems of any dimension manufactured during that period |
| 10.9     | Test for impact resistance                                                                                                                     | 10.9                       | IS / IEC 61537 | One |                                                                                                                        |
| 11       | Electrical properties                                                                                                                          |                            |                |     |                                                                                                                        |
| 11.1     | Electrical continuity                                                                                                                          | 11.1                       | IS / IEC 61537 | One | Once in a month for each type of Cable Tray (or) Cable ladder systems of any dimension manufactured during that period |
| 11.2     | Electrical non-conductivity                                                                                                                    | 11.2                       |                | One |                                                                                                                        |
| 13       | Fire hazards                                                                                                                                   |                            |                |     |                                                                                                                        |
| 13.1     | Reaction to fire                                                                                                                               | 13.1.1<br>13.1.2<br>13.1.3 | IS / IEC 61537 | One | Once in a month for each type of Cable Tray (or) Cable ladder systems of any dimension manufactured during that period |
| 14       | External influences                                                                                                                            |                            |                |     |                                                                                                                        |
| 14.1     | Resistance against environmental forces                                                                                                        | 14.1                       | IS / IEC 61537 | One | Once in a month for each type of Cable Tray (or) Cable ladder systems of any dimension manufactured during that period |
| 14.2     | Resistance against corrosion                                                                                                                   | 14.2.1<br>14.2.2           |                |     |                                                                                                                        |
|          |                                                                                                                                                | 14.2.3                     |                |     |                                                                                                                        |