



**PRODUCT MANUAL FOR
STEEL WIRE SUSPENSION ROPES FOR
LIFTS, ELEVATORS AND HOISTS
ACCORDING TO IS 2365:2018**

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence 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 license/certificate.

1.	Product	:	IS 2365:2018
	Title	:	Steel Wire Suspension Ropes for Lifts, Elevators and Hoists
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	Fiber Core- IS 1804 Steel Core (CWR)- IS 6594
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	Mechanical Tests: 4 meter Chemical Tests: 5 pieces
3.	List of Test Equipment	:	Please refer ANNEX – B
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – C
5.	Possible tests in a day:		Rope Size and Tolerance (Cl. 4) General requirements (Cl. 6) Tests on wire prior to rope manufacture (Cl. 10.1 of IS 6594)
6.	Scope of the Licence:		Please refer ANNEX – D

ANNEX-A**Grouping Guidelines**

1. IS 2365: 2018 covers Steel Wire Suspension Ropes for Lifts, Elevators and Hoists which are classified into different varieties based on the following:
 - a) Construction (as per Cl. 1)
 - b) Rope Tensile Grade – Single Tensile Grade/ Dual Tensile Grade
 - Single Tensile Grade- 1230, 1420, 1570
 - Dual Tensile Grade- 1180/1770, 1370/1770, 1570/1770
 - c) Core – Fibre/ Steel
 - Steel Core shall be of Independent Wire rope Core (CWR).
 - d) Size (Nominal Diameter)
 - e) Galvanized/ Ungalvanized

2. Considering the above, the grouping guidelines given below shall be followed for GoL/CSoL:
 - i) Separate samples of Steel Wire Rope with Fibre Core and Steel Core (as applicable for various constructions) for each type of rope tensile grade (Single Tensile Grade/ Dual Tensile Grade) of any Construction and Size (Nominal Diameter), preferably the largest size, shall be drawn and tested for all the requirements.
 - ii) However, the following relaxation may be given when a particular variety is tested for all the requirements:

Variety Tested	Additional Variety that may be covered	Remarks
<ul style="list-style-type: none"> • Rope Grade – 1570 • Rope Grade - 1420 	<ul style="list-style-type: none"> • Rope Grade – 1420 & 1230 • Rope Grade - 1230 	For Single Tensile Grade Ropes
<ul style="list-style-type: none"> • Rope Grade – 1570/1770 • Rope Grade - 1370/1770 	<ul style="list-style-type: none"> • Rope Grades – 1370/1770, 1180/1770 • Rope Grade - 1180/1770 	For Dual Tensile Grade Ropes
Galvanized Steel Wire Rope	Ungalvanized Steel Wire Rope	

3. The Firm shall declare the Varieties of various Steel Wire Ropes they intend to cover in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.

4. During the operation of license, it shall be ensured that all varieties covered in the license are tested in rotation, to the extent possible.

ANNEX--B**List of Test Equipment***Major test equipment required to test as per the Indian Standard*

Sr No	Tests used in with clause reference	Test equipment
1.	Rope size and tolerance, Cl. 4, Table 1 to Table 5	Vernier caliper, Micrometer
2.	Minimum breaking force - Cl. 5, Table 1 to 5 Tensile test- Cl. 10 of IS 6594	Tensile testing machine / Breaking Load Testing Machine
3.	Torsion test , Cl. 6 (Cl. 10.3.3 of IS 6594, 12.3 of IS 1835)	Torsion testing machine
4.	Approximate mass , Cl. 6.3- Table 1 to 5	Weighing balance
5.	Reverse Bend Test, Cl.6 (Cl. 12.4 of IS 1835, 10.3.4 of IS 6594)	Bend testing machine
6.	Length of rope - Cl. 6 (Cl. 6.4 of IS 6594)	Measuring tape / Length Counter meter
7.	Tests for Galvanizing, Cl.6.4 (Cl. 11 , 12.6 of IS 1835)	Weighing balance, Chemicals, mandrels of suitable size etc.
8.	Tests for fibre core, Cl. 6.2.1	Weighing balance, Xylene/benzole, Methylene chloride, Extraction sleeve, Drying cabinet, dessicator, Soxhlet apparatus, other chemicals etc and glassware as required as per IS 1804

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

ANNEX C

Scheme of Inspection and Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipment.

2. TEST RECORDS – The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per requirements of IS 2365: 2018.

4. LEVELS OF CONTROL - The tests as indicated in column 1 of [Table 1](#) and the levels of control in column 3 of [Table 1](#), shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2 above.

4.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

5. REJECTIONS – 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

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
4	Rope Size and Tolerance	4	IS 2365	R	Each rope	----	---
5	Minimum Breaking Load	5, Annex A	IS 2365	R	Two	Each continuous length	For finished rope
6.1	Core Fibre Core Steel Core	6.1	IS 2365 IS 1804 IS 6594	S	One	Each consignment	No further testing is required if accompanied with test certificate
6.2	Joints	6.2	IS 2365	R	Each rope		---
6.3	Mass	6.3	IS 2365	R	Each rope		---
6.4	Galvanizing	6.4 11.2,11.3	IS 2365 IS 1835	R	One	Every fifth coil	
6.5	Tensile Grade	6.5	IS 2365	R	Each rope		---
6	Other General Requirements as per IS 6594						
	Chemical composition of steel wire	4.1	IS 6594	S	One	Each heat	No further testing is required if accompanied with test certificate
	Lay	6.7	IS 6594	R	Each rope		---
	Freedom from defects	7	IS 6594	R	Each rope		Adequate inspection to be carried out
	Individual wires before stranding	10.1	IS 6594				
	Diameter	10.1	IS 1835	R	Two	Every fifth coil	If required by purchaser
	Tensile strength	12.2					
	Torsion test	12.3					
	Reverse bend test	12.4					
	Adhesion test	12.6					
	Wrapping test	12.5					

	Test on wire from completed wire	10.3	IS 6594				
	Tensile test	10.3.2	IS 6594	R	As per Cl.10.3.1 of IS 6594	Each 25 ton or part thereof from finished rope	If required by purchaser
	Torsion test	10.3.3					
	Reverse bend test	10.3.4					
	Diameter of wire	10.3.6					
	Galvanizing	10.3.5					

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.

ANNEX D

Scope of Licence

“Licence is granted to use Standard Mark as per IS 2365:2018 with the following scope:

Name of the product	Steel Wire Suspension Ropes for Lifts, Elevators and Hoists
Size	
Construction	
Core	
Rope Grade	
Whether Galvanized or Ungalvanized	