



**PRODUCT MANUAL FOR
ROUND STRAND GALVANIZED STEEL WIRE ROPES
FOR SHIPPING PURPOSES
ACCORDING TO IS 2581:2002**

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 2581: 2002
	Title	:	Round Strand Galvanized Steel Wire Ropes for Shipping Purposes
	No. of Amendments	:	Nil
2.	Sampling Guidelines:		
a)	Raw material	:	-
b)	Grouping guidelines	:	Please refer ANNEX – A
c)	Sample Size	:	Mechanical Tests: 4 meter Chemical Tests: 5 pieces of 5cm x 5cm
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 :		Size (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 2581: 2001 covers Round Strand Galvanized Steel Wire Ropes for Shipping Purposes which are classified into different varieties based on the following:
 - a) Construction (as per Cl. 1)
 - b) Type- Round Strand/Multi-strand Rotation-resistant
 - c) Rope Grade – 1420/1570
 - d) Core – Fibre/ Steel
 - e) Rope Size (Nominal Diameter)
2. Considering the above, the following grouping guidelines shall be followed for GoL/CSoL:
 - i) Round Strand wire Rope of any construction (Table 1 to Table 8) and Size (Nominal Diameter), preferably the largest size, shall be drawn and tested for all the requirements
 - ii) Separate samples of Multi-strand Rotation-resistant wire Rope with Fibre Core and Steel Core of any Construction (Table 9 & Table 10) and Size (Nominal Diameter), preferably the largest size, shall be drawn and tested for all the requirements.
 - iii) 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
Rope Grade – 1570	Rope Grade – 1420

3. The Firm shall declare the Varieties of various 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	Minimum breaking force - Cl. 5, 6	Tensile testing machine / Breaking Load Testing Machine
2	Torsion test - Cl. 6 (Cl. 10.3.3 of IS 6594, 12.3 of IS 1835)	Torsion testing machine
3	Measurement of mass - Table 1 to 10	Weighing balance
4	Reverse Bend Test (Cl. 10.3.4 of IS 6594)	Bend testing machine
5	Rope size and Tolerance Dimensions - (Cl. 4 of IS 2581, Cl. 5 & Annex A of IS 6594)	Vernier caliper, Micrometer
6	Tests for Galvanizing (Cl. 10.3.5 of IS 6594 ; Cl. 11, 12.6 of IS 1835)	Weighing balance, Chemicals, mandrels of suitable size etc.

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 Clause 10 of IS 2581: 2002.

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					Levels of Control		
Clause	Requirement	Test Methods		Test equipment requirement Required (R) or Sub-contracting permitted (S)	No. of Sample	Frequency	Remarks
		Clause	Reference				
4	Size	4, Table 1 to Table 10 Annex A	IS 2581 IS 6594	R	Each Rope	--	-
5	Minimum Breaking Force	5, Table 1 to 10 Annex B	IS 2266 IS 6594	R	One	Each continuous length of finished rope	
6	General Requirements						
-	Chemical composition of steel wire	4.1 6.1	IS 6594 IS 2581	S	One	Each heat	No testing is required if the material is ISI Marked or accompanied with a test certificate.
	Fibre core	All requirements of IS 1884		S	Two	Each consignment	
-	Approximate Mass	Table 1 to Table 10 6.5	IS 2581 IS 6594	R	Each Rope		-

-	Lay of rope	6.3 6.7	IS 2581 IS 6594	R	Each Rope	-
-	Length of lay	6.3.1	IS 2581	R	Each Rope	
-	Joints	6.4 6.8	IS 2581 IS 6594	R	Each Rope	-
-	Freedom from defects	7	IS 6594	R	Each Rope	-
-	Performing	8	IS 6594	R	One	Every loading length subject to a max. of 5 T
-	Lubrication	8	IS 2581	R	Each Rope	-
-	Tests on wire prior to Rope Manufacture as per Cl. 10.1 of IS 6594					
-	a) Diameter	10.1	IS 1835	R	One	Each coil from which a construction and size is made
-	b) Tensile strength	12.2	IS 1835	R	One	
-	c) Torsion test	12.3	IS 1835	R	One	
-	d) Reverse bend test	12.4	IS 1835	R	One	
-	e) Galvanizing test	11, 12.6	IS 1835	R	Two	Every 5 th Coil or as per Cl. 11
						For individual wires one sample from one end of each coil wound round the bobbins for each size shall be tested for all the tests laid down. If a sample fails in any of the requirements, the particular coil shall be rejected. No testing required if ISI Marked.

	Tests on individual Wires as per Cl. 10.3 of IS 6594*						
-	a) Tensile strength	10.3.2	IS 6594	R	As per Cl. 10.3.1.1 & 10.3.1.2 of IS 6594 (as applicable)	Each coil from which a construction and size is made	For individual wires one sample from one end of each coil wound round the bobbins for each size shall be tested for all the tests laid down. If a sample fails in any of the requirements, the particular coil shall be rejected. No testing required if ISI Marked.
-	b) Torsion test	10.3.3	IS 6594	R			
-	c) Reverse bend test	10.3.4	IS 6594	R			
-	d) Galvanizing test	10.3.5	IS 6594	R	One		
-	e) Diameter of wire	10.3.6	IS 6594	R	Two	Every 5th Coil or as per Cl. 11	

* To be done only when specified by purchaser.

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 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 2581: 2002 with the following scope:

Name of the product	Round Strand Galvanized Steel Wire Ropes for Shipping Purposes
Type	
Rope Size	
Construction	
Core	
Rope Grade	