



**PRODUCT MANUAL FOR  
UNCOATED STRESS RELIEVED STRAND  
FOR PRESTRESSED CONCRETE  
ACCORDING TO IS 6006: 2014**

*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 licence/certificate.*

1.	<b>Product</b>	:	IS 6006 : 2014
	<b>Title</b>	:	UNCOATED STRESS RELIEVED STRAND FOR PRESTRESSED CONCRETE
	<b>No. of Amendments</b>	:	NIL
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	Wire - Clause 4.1 of IS 6006 : 2014
b)	<b>Grouping guidelines</b>	:	Please refer <a href="#">ANNEX – A</a>
c)	<b>Sample Size</b>	:	3 meter for mechanical test , 3 meter for relaxation test, and 50 gm drillings for chemical test.
3.	<b>List of Test Equipment</b>	:	Please refer <a href="#">ANNEX – B</a>
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer <a href="#">ANNEX – C</a>
5.	<b>Possible tests in a day</b> : Please refer <a href="#">ANNEX – D</a>		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 6006 : 2014 with the following scope:		
	Name of the product	UNCOATED STRESS RELIEVED STRAND FOR PRESTRESSED CONCRETE	
	Class and Designation		

**ANNEX A****Grouping Guidelines**

1. For considering GoL/CSoL, Uncoated stress relieved strands for pre-stressed concrete are grouped as given below:

<b>Group</b>	<b>Number of element wires (ply)</b>	<b>Nominal diameter of element wire (mm)</b>	<b>Class</b>	<b>Designation</b>
Group I	2	2	-	2 ply 2 mm
	2	3	-	2 ply 3 mm
Group II	3	3	-	3 ply 3 mm
Group III	7	6.3	1	7-ply 6.3 mm
	7	7.9	1	7-ply 7.9 mm
	7	9.5	1	7-ply 9.5 mm
	7	11.1	1	7-ply 11.1 mm
	7	12.7	1	7-ply 12.7 mm
	7	15.2	1	7-ply 15.2 mm
Group IV	7	9.5	2	7-ply 9.5 mm
	7	11.1	2	7-ply 11.1 mm
	7	12.7	2	7-ply 12.7 mm
	7	15.2	2	7-ply 15.2 mm

2. Strands with highest size of wire from each group shall be tested to cover all the varieties in that group.
3. The Firm shall declare the varieties intended to be covered 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 the Licence, BO shall ensure that all the varieties are covered in the Licence 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*

<b>S. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1	Chemical composition (Clause 4.1.2)	a) All glasswares & chemicals as per the relevant parts of IS 228 for sulphur and phosphorous testing
2	Strand	a) Micrometre b) Carbon paper and plain paper
3	Nominal diameter and Tolerances (Clause 5 & 6)	a) Micrometre b) Vernier calliper c) Weighing balance d) Steel scale
4	Breaking strength (Clause 7.1) Proof load (Clause 7.2) Elongation (Clause 7.3)	a) Tensile testing machine/UTM b) Extensometer c) Steel scale
5	Relaxation (Clause 7.4)	a) Relaxation testing machine b) Air conditioner

*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 the requirements of IS 6006: 2014

**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** Manufacturer shall supply a test certificate which shall contain the BIS Standard Mark and other details related to product supplied as per Annex- 1.

**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 Methods			No. of Sample	Frequency	Remarks
		Clause	Reference				
4.1	Chemical composition of wire	4.1	IS 6006 IS 228 (Part 3, Part 9)	S	1	Each cast of wire/ wire rod received	No further testing is required if accompanied with Test Certificate or ISI marked.
4.2	Strand	4.2	IS 6006	R	Each coil	-	Samples shall be drawn from both ends of the coil.
4.3	Joints	4.3	IS 6006	-	Each coil	-	-
4.4	Stress relieving of strand	4.4	IS 6006	-	Each coil	-	-
4.5	Workmanship and finish	4.5	IS 6006	-	Each coil	-	-
5	Size and Designation a) Nominal diameter b) Nominal cross sectional area c) Nominal mass of strand	5.1 to 5.3, 6.1	IS 6006	R	Each coil	-	Samples shall be drawn from both ends of the coil.
7.1	Breaking strength	7.1	IS 6006	R	1	Each coil	-
7.2	Proof load	7.2	IS 6006	R	1		
7.3	Elongation	7.3	IS 6006	R	1		

7.4	Relaxation	7.4 7.4.1	IS 6006	S	1	Once in a year for each designation of strand or whenever there is any change in the process of manufacture
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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 obligatory in nature.



**ANNEXURE I**  
**(Para 5.1 of the Scheme of Inspection and Testing)**

**STANDARD  
 MARK**

**XYZ COMPANY**  
**(Registered office Address and works address)**

**TEST CERTIFICATE FOR UNCOATED STRESS RELIEVED STRAND FOR PRESTRESSED CONCRETE ACCORDING TO IS 6006 : 2014**

TEST CERTIFICATE No. \_\_\_\_\_ DATE \_\_\_\_\_  
 TO M/s \_\_\_\_\_

It is certified that the material described below fully conforms to IS 6006 : 2014. Chemical composition and Mechanical properties of the Product, as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence CM/L \_\_\_\_\_ are as indicated below against each order No. .

(PLEASE REFER TO IS 6006 : 2014 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

**TEST RESULTS**

Order No. & Date	Size Designation & Class (As applicable)	Coil No.	Raw material cast Number	Lay length (mm)	Nominal Mass of Strand (kg/km)	Strand dia (mm)	Dia of Individual Wire (mm)	CHEMICAL ANALYSIS					MECHANICAL PROPERTIES			Relaxation (Kgf / mm <sup>2</sup> )	REMARKS
								C (%)	Si (%)	Mn (%)	S (%)	P (%)	Proof Load (kN or kgf)	Breaking Strength (kN or kgf)	Elongation (Percentage)		

Surface defects : a) Splits, Injurious flaws, etc. Absent/Present  
 b) Imperfections Absent/Present  
 c) Rusting Absent/Slight but not sufficient to cause pits visible to naked eye.

Finish: Strand is uniform in diameter, not oiled or greased

REMARK

SHIPPING ADVICE No.  
 WAGON NOS.

SIGNATURE:

DESIGNATION:  
 FOR XYZ COMPANY



**ANNEX- D**

**POSSIBLE TESTS IN A DAY**

- (i) Wire (Clause 4.1)
- (ii) Strand and joints (Clause 4.2 & 4.3)
- (iii) Workmanship and finish (Clause 4.5)
- (iv) Size and designation (Clause 5)
- (v) Breaking strength (Clause 7.1)
- (vi) Proof load (Clause 7.2)
- (vii) Elongation (Clause 7.3)