



उत्पाद मैनुअल
आई एस 14268 : 2022 के अनुसार पूर्व प्रतिबलित कंक्रीट के लिए तनाव रहित
कम शिथिलन वाले अलेपित सात-तार (प्लाई) के स्टैंड के लिए

दस्तावेज़ संख्या – पीएम/आईएस 14268/2/दिसंबर 2022

भारतीय मानक ब्यूरो की स्कीम-I (अनुरूपता मूल्यांकन) विनियम, 2018 के तहत यह उत्पाद मैनुअल प्रमाणीकरण के प्रचालन में रीति और पारिश्रिता की सुसंगतता सुनिश्चित करने के लिए सभी क्षेत्रीय/शाखा कार्यालयों और लाइसेंसी द्वारा संदर्भ सामग्री के रूप में उपयोग किया जाएगा। बीआईएस प्रमाणीकरण लाइसेंस/प्रमाणपत्र प्राप्त करने के इच्छुक भावी आवेदकों द्वारा भी इस दस्तावेज़ का उपयोग किया जा सकता है।

PRODUCT MANUAL FOR
UNCOATED STRESS RELIEVED LOW RELAXATION
SEVEN –WIRE (PLY) STRAND FOR PRESTRESSED
CONCRETE ACCORDING TO IS 14268: 2022

Document No.- PM/ IS 14268/2/Dec 20222

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.

भारतीय मानक ब्यूरो
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**PRODUCT MANUAL FOR
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1.	Product	: IS 14268 : 2022
	Title	: Uncoated Stress Relieved Low Relaxation Seven – Wire (Ply) Strand for Prestressed Concrete
	No. of Amendments	: NIL
2.	Sampling Guidelines:	
a)	Raw material	: Wire – As per clause 4.1 of IS 14268 and IS 7904
b)	Grouping guidelines	: Please refer ANNEX- A
c)	Sample Size	: 1 meter x 3 nos for Mechanical test (except relaxation test), 5 pcs of 5cm x 5 cm for chemical test, 3 meter for Relaxation test
d)	Sampling Guidelines During Operation of Licence	: Please refer ANNEX – B
3.	List of Test Equipment	: Please refer ANNEX – C
4.	Scheme of Inspection and Testing	: Please refer ANNEX – D
5.	Possible tests in a day : Please refer ANNEX – E	
6.	Scope of the Licence :	
	Licence is granted to use Standard Mark as per IS 14268 : 2022 with the following scope:	
	Name of the product	Uncoated Stress Relieved Low Relaxation Seven – Wire (Ply) Strand For Prestressed Concrete
	Designation of Strand	Nominal Diameter – Nominal Tensile Strength – Type of Strand

ANNEX A
Grouping Guidelines

1. IS 14268 : 2022 covers Uncoated Stress Relieved Low Relaxation Seven – Wire (Ply) Strand for Prestressed Concrete with the following requirements :
 - i) Nominal Diameter of Strand (Size) (mm): 6.4, 6.9, 7.0, 8.0, 8.6, 9.0, 9.3, 9.6, 11.0, 11.3, 12.5, 12.7, 12.9, 13.0, 15.2, 15.7, 18.
 - ii) Tensile Strength (MPa): 1670, 1770, 1820, 1860, 1960, 2060, 2160.
 - iii) Type of Strand: Plain/ Indented/ Compacted
2. Considering the above, Uncoated Stress Relieved Low Relaxation Seven – Wire (Ply) Strand for Prestressed Concrete are categorized into the following groups:

Group	Tensile Strength (MPa)	Nominal Diameter of Strand (mm)
Group I	1670	6.4, 6.9, 7.0, 8.0, 8.6, 9.0, 9.3, 9.6, 11.0, 11.3, 12.5, 12.7, 12.9, 13.0, 15.2, 15.7, 18
Group II	1770	
Group III	1820	
Group IV	1860	
Group V	1960	
Group VI	2060	
Group VII	2160	

3. Considering the above, following grouping guidelines for GoL/ CSoL have been developed:
 - (i) Strands with highest size from each group shall be tested for all requirements to cover all the sizes up to and including the size tested in that group.
 - (ii) Any one type of strand shall be tested for all requirements, in order to cover all the types of strand, based on the manufacturing capabilities of the manufacturer.
4. 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.
5. 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

Sampling Guidelines During Operation of Licence

- (i) During an operative year of a licence, two Factory Samples and two Market Samples shall be drawn. One FS and one MS shall be drawn for independent testing for complete testing of the product. The other FS and other MS are to be drawn for independent testing for all tests except relaxation tests.
- (ii) A separate sample shall be drawn along with FS and MS for chemical testing as per Clause 4.1.2 of IS 14268:2022.
- (iii) Market Samples are to be drawn from organized buyers. Whenever it is not possible to draw MS from organized buyers, samples from dispatch point may be taken.
- (iv) During Factory Surveillance inspection, all tests as given in Annex-E are to be carried out.

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

S. No.	Tests used in with Clause Reference	Test Equipment
1.	Strand (Clause 4.2)	a) Micrometer b) Carbon paper and plain paper c) Measuring Tape
2.	Dimensions (Clause 6.1)	a) Micrometer b) Vernier caliper c) Weighing balance d) Steel scale
3.	Breaking strength & 0.2 percent proof load (Clause 6.2.2) Elongation (Clause 6.2.3)	a) Tensile testing machine/UTM b) Extensometer c) Steel scale
4.	Relaxation (Clause 6.2.4)	a) Relaxation testing machine b) Air conditioner
5.	Straightness of Strand	a) Vernier caliper b) Measuring Rule – 1m c) Flat horizontal Surface

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

ANNEX D

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 14268: 2022.

4. CONTROL UNIT – All strands of same designations manufactured from the same material from each machine under similar conditions of manufacture in a day shall constitute a control unit.

5. 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.

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

5.2 For each consignment of BIS certified material conforming to IS 14268: 2022, a test certificate as per Annexure 1 shall be issued.

6. 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	Wire	4.1.1 & 4.1.2	IS 14268	S	One	Each consignment	No testing is required if each consignment is received with a test certificate.
4.1.3	Surface condition	4.1.3	IS 14268	R	Five	Each Control Unit	-
4.1.4	Dimensions of Indentations	4.1.4	IS 14268	R	Five	Each Control Unit	Sample may be taken from outer end of the coil.
4.2	Strand	4.2 and Annex A	IS 14268	R	Five	Each Control Unit	Sample may be taken from outer end of the coil.
4.3	Joints	4.3	IS 14268	R	Five	Each Control Unit	Sample may be taken from outer end of the coil.
4.4	Treatment of Strand	4.4	IS 14268	R	Five	Each Control Unit	Sample may be taken from outer end of the coil.
4.5	Workmanship and Finish	4.5	IS 14268	R	Five	Each Control Unit	Sample may be taken from outer end of the coil.
6.1	Nominal diameter, tolerance, nominal cross sectional area and nominal mass per unit length of strand.	6.1.1 and Annex A	IS 14268	R	Five	Each Control Unit	Sample may be taken from outer end of the coil.
6.3 & 6.4	Straightness of Strand & Behavior During Cutting	6.3 & 6.4	IS 14268	R	Five	Each Control Unit	Sample may be taken from outer end of the coil.

6.2.2	Breaking strength and 0.2 percent proof load	6.2.2	IS 14268 & IS 1608	R	Three	Each Control Unit	Refer provisions of clause 6.2.1 while conducting these tests.
6.2.3	Elongation	6.2.3	IS 14268 & IS 1608	R	Three		
6.2.4	Relaxation properties (For 100 h duration)	6.2.4	IS 14268	S	One	Two samples (one from lowest and one from highest strand designation) produced in a period of three months	
	Relaxation properties (For 1000 h duration)	6.2.4	IS 14268	S	One	Two samples (one from lowest and one from highest strand designation) produced in a period of one year	

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.

ANNEXURE I
(Para 4.2 of the Scheme of Testing and Inspection)
XYZ COMPANY
(Registered office Address and works address)

STANDARD MARK

TEST CERTIFICATE FOR UNCOATED STRESS RELIEVED LOW RELAXATION SEVEN - WIRE (PLY) STRAND FOR PRESTRESSED CONCRETE ACCORDING TO IS 14268 : 2022

TEST CERTIFICATE No. _____ DATE _____
 TO M/s _____

It is certified that the material described below fully conforms to IS 14268: 2022. Chemical composition and Mechanical properties of the Product, as tested in accordance with the Scheme of Testing and Inspection contained in the BIS Certification Marks Licence CM/L_____are as indicated below against each order No. .

(PLEASE REFER TO IS 14268: 2022 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Strand Designation	Coil No.	Lay length	CHEMICAL ANALYSIS/ MECHANICAL PROPERTIES														Relaxation loss	REMARKS
				C	Si	Mn	S	P	Cr	Ni	Mo	Cu	Al	S+P	0.2 % Proof Load	Breaking Strength	Elongation		
				%	%	%	%	%	%	%	%	%	%	%	kN or kgf	kN or kgf	Percentage	Percentage	

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

REMARK

SHIPPING ADVICE No.
 WAGON NOS.

SIGNATURE:

DESIGNATION:
 FOR XYZ COMP

ANNEX – E

Possible Tests In A Day

- (i) Strand (Clause 4.2)
- (ii) Joints (Clause 4.3)
- (iii) Workmanship and finish (Clause 4.5)
- (iv) Breaking strength and 0.2 percent proof load and elongation (Clause 6.2.2, 6.2.3)
- (v) Straightness of Strand & Behavior During Cutting (Clause 6.3 & 6.4)