



**PRODUCT MANUAL FOR
PLAIN HARD-DRAWN STEEL WIRE FOR PRESTRESSED
CONCRETE – COLD DRAWN STRESS-RELIEVED WIRE
ACCORDING TO IS 1785 (PART 1): 1983**

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.	Product	:	IS 1785 (PART 1) : 1983
	Title	:	PLAIN HARD-DRAWN STEEL WIRE FOR PRESTRESSED CONCRETE – COLD DRAWN STRESS-RELIEVED WIRE
	No. of Amendments	:	4
2.	Sampling Guidelines:		
a)	Raw material	:	Steel – Clause 3 of IS 1785 (Part 1)
b)	Grouping guidelines	:	Wire of each size (nominal diameter) shall be tested to cover that size for GoL or CSoL
c)	Sample Size	:	2 m for Physical test and 100 gm for Chemical Test
3.	List of Test Equipment	:	Please refer ANNEX – A
4.	Scheme of Inspection and Testing	:	Please refer ANNEX – B
5.	Possible tests in a day	:	All tests except Relaxation test
6.	Scope of the Licence :		
	“Licence is granted to use Standard Mark as per IS 1785 (Part 1) : 1983 with the following scope:		
	Name of the product		PLAIN HARD-DRAWN STEEL WIRE FOR PRESTRESSED CONCRETE – COLD DRAWN STRESS-RELIEVED WIRE
	Size		2.50 mm, 3.00 mm, 4.00 mm, 5.00 mm, 7.00 mm, 8.00 mm

ANNEX A**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.	Nominal Sizes and Tolerances (Clause 4 and 5)	a) Micrometre b) Vernier calliper
2	Nominal mass (Clause 5.1.2)	a) Weighing scale b) Steel scale
2.	Tensile strength (Clause 6.1) Proof Stress (Clause 6.2) Elongation after fracture (Clause 6.4)	a) Tensile testing machine/UTM b) Extensometer c) Steel scale
3.	Ductility (Clause 6.3)	a) Bending arrangement with required mandrels
4	Relaxation (Clause 6.5)	a) Relaxation testing machine b) Air conditioner

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

ANNEX B

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 1785 (Part 1): 1983.

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.

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				
3	Manufacture and Chemical composition	3.1, 3.2	IS 1785 (Part 1)	S	One	Each lot	No further testing is required if accompanied with Test Certificate or ISI marked.
	Manufacture	3.3 to 3.5	IS 1785 (Part 1)	-	Each coil	-	-
4 & 5	Nominal Size, Ovality and tolerance	4.1, 5.1	IS 1785 (Part 1)	R	Each Coil	-	-
5.1.2	Nominal mass	5.1.2	IS 1785 (Part 1)	R	Each Coil	-	-
6	Physical Requirements						
6.1	Tensile Strength	6.1,7.3	IS 1785 (Part 1)	R	One	Every tenth coil	In case of failure, the coil from which sample was drawn shall be rejected. Samples from each coil shall be tested subsequently and only conforming coils shall be marked. When samples from five consecutive coils meet the requirements, the earlier frequency shall be restored.
6.2	Proof stress	6.2, 7.4	IS 1785 (Part 1)	R	One	Every tenth coil	
6.3	Ductility	6.3, 7.5	IS 1785 (Part 1)	R	One	Every tenth coil	
6.4	Elongation after fracture	6.4, 7.6	IS 1785 (Part 1)	R	One	Every tenth coil	

6.5	Relaxation	6.5, 7.7	IS 1785 (Part 1)	S	One	Once in a month	For 100 h relaxation test #
6	Susceptibility to stress corrosion	6	IS 1785 (Part 1)	Testing frequency and test method shall be as agreed between the purchaser and the manufacturer			

The relaxation test shall be carried out for 100 h and the graph shall be extrapolated to 1000 h. Relaxation test for 1000 h shall be carried out once in a year for any one size. However, samples shall be drawn in such a manner that all sizes covered in licence may be tested to the extent possible over a period of time.

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.