



उत्पाद मैनुअल
अस्तर व लेपन वाले सरिये / तार से लीपटे हुए इस्पात के बेलनाकार पाइप
(वीशेष सहायकांग सहित) के लिए
आई एस 15155:2020 के अनुसार

PRODUCT MANUAL FOR
BAR/WIRE WRAPPED STEEL CYLINDER PIPES WITH MORTAR LINING
AND COATING (INCLUDING SPECIALS)
ACCORDING TO IS 15155: 2020

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो) अनुरूपता मूल्यांकन (विनियम, 2018 की योजना -I के तहत प्रमाणन के संचालन में एकरूपता और पारदर्शिता के लिए इस उत्पाद मैनुअल का उपयोग सभी क्षेत्रीय / शाखा कार्यालयों और लाइसेंसधारियों द्वारा संदर्भ सामग्री के रूप में किया जाएगा। दस्तावेज़ का उपयोग बीआईएस प्रमाणन प्राप्त करने के इच्छुक संभावित आवेदकों द्वारा भी किया जा सकता है।

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

1.	मानक संख्या IS No.	:	IS 15155 : 2020
	शीर्षक Title	:	Bar/Wire Wrapped Steel Cylinder Pipes With Mortar Lining and Coating(Including Specials)
	संशोधनों की संख्या No. of amendments	:	1
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Please refer to Annex-A Note: This section indicates the requirements for raw material (if specified in the IS) for which compliance is to be established during Grant of Licence/Change in Scope of Licence/ Factory Surveillance
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	Please refer to Annex-B
c)	नमूने का परिमाण Sample Quantity	:	All tests to be done in factory as the licence is operated on Factory Testing basis. Sample of mortar cubes (3 Nos) shall be drawn and tested for assessment of quality of mortar.

		Note: This section indicates the quantity of the sample of the product and/or the raw material (if applicable), required to be sent to the laboratory for testing, for the purpose of Grant of Licence/Change in Scope of Licence/ Factory Surveillance (incase of market surveillance, effort may be made to procure therequired quantity of product sample, as far as possible since raw material sample may not be available in market)
3.	परीक्षण उपकरणों की सूची List of Test Equipment	: Please refer to Annex-C
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	: Please refer to Annex-D
5.	एक दिन में संभावित परीक्षण Possible tests in a day	
	All tests to be done in factory as the licence is operated on Factory Testing basis. 6 days are required for complete testing. Note: This section is for the guidance of BIS Certification Officers/Technical Auditors of BIS Authorized Outside Surveillance Agencies (OSAs) during factory inspection to provide ready reference regarding the tests which can be witnessed during the inspection in the factory by the officer/auditor.	
6.	लाइसेंस का दायरा /Scope of the Licence:	
	“Licence is granted to use Standard Mark as per IS 15155 : 2020 with the following scope:	
	Name of the product	i. Bar/Wire Wrapped Steel Cylinder Pipes with Mortar Lining and Coating ii. Specials
	Nominal internal diameter (mm)	
	Working pressure (N/mm ²)	
	Type of ends/joints	Steel socket and spigot ring (rubber ring joint)/Steel ring(welded joint)
	Details of specials	Bends/Air valves/ Scour valve tees etc

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ANNEX A
Raw Material

Raw Material	Indian Standard
Cement (Cl 4.1)	Cement used for the manufacture of bar/waire wrapped steel cylinder pipes and specials shall be ISI marked conforming to the relevant Indian Standard as mentioned in Clause 4.1 of IS 15155.
Aggregates (Cl 4.2)	The aggregates shall conform to IS 383 & Clause 4.2 of IS 15155. If source and/or size and types of coarse and fine aggregate has changed, it shall be treated as additional raw material.
Water (Cl 4.3)	Water used for mixing of concrete and curing of pipes shall conform to 5.4 of IS 456.
Admixtures (Cl 4.4)	Admixtures, if used shall confirm to IS 9103 and Clause 4.4 of IS 15155.
Steel for Reinforcement (Cl 4.5)	Reinforcement bar/wire shall confirm to Clause 4.5 of IS 15155. If different type and/or sizes of steel for reinforcement are used, it shall be treated as additional raw material.
Steel for cylinder, joint rings and specials (Cl 4.6)	Steel for cylinder, joint rings and specials shall confirm to Clause 4.6 of IS 15155.
Rubber sealing rings (Cl 4.7)	Rubber sealing rings shall confirm to Clause 4.7 of IS 15155
Bitumen epoxy paint or other Protective coating	Bitumen or other Protective coating shall confirm to Clause 4.8 of IS 15155

ANNEX-B

Grouping Guidelines

1. Bar/Wire wrapped steel cylinder pipes with mortar lining and coating/Specials as per IS 15155:2020 are classified as given below:

- a) Sizes – 250 mm to 1900 mm
- b) Factory test pressure – to be declared by manufacturer
- c) Type of ends/joints – Steel socket and spigot ring (rubber ring joint)/Steel ring (welded joint)

(Pipes with internal diameter other than those specified in Table 1 of IS 15155: 2020 and pipes for working pressure higher than 28 kg/cm² may be supplied as per mutual agreement between the purchaser and the manufacturer)

2. Sizes of pipes / specials further classified into following groups based on minimum wall thickness:

	Group -I	Group -II	Group -III	Group -IV
Sizes	250 to 400 mm	500 to 1000 mm	1100 to 1600 mm	1700 to 1900 mm

3. Considering the above, following grouping guidelines is developed for GoL/CSoL :
 - a) Pipes/ Specials of each type shall be tested from each size group for each factory test pressure rating to cover all sizes of Pipes / Specials in that particular group.
 - b) If Pipe/Special with higher factory test pressure is tested, Pipe/Special with lower factory test pressure from the same group may also be covered.
 - c) For sizes not covered in Table 1 of IS 15155: 2020, each type of Pipe/Special for each minimum wall thickness shall be tested to cover all sizes of the particular type of Pipe/Special for that minimum wall thickness.
4. The Firm shall declare the varieties they intend to cover 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 covered in the Licence are tested in rotation, to the extent possible.

ANNEX-C

List of Test Equipment

(INDICATIVE LIST, FOR GUIDANCE ONLY)

S. No.	Tests used in with Clause Reference	Test Equipment
1	Dimension and Tolerance Clause 5	- Steel Tape - Steel Scale - Vernier Calipers - Micrometer - Go & No-Go Calipers - Go-No Go gauges of stiff rod
2	Workmanship ad finish Clause 10	- Straight edge as per clause 10.1& 13.1.5 - Vernier caliper
3	Hydrostatic Test Clause 11.1 Pipe test at factory Clause 11.2	- Hydrostatic Test Arrangement fitted with water gauge or pressure gauge of suitable range and least count and water filling arrangement - Stop watch - Feeler gauge of 0.5 mm - Vernier caliper
4	Permeability Test on coating Clause 11.3	- Permeability Test Arrangement with graduated glass tubes, metal cups, wash bottles, crocks etc as per IS 3597
5	Compressive strength of cement mortar cube Clause 8.2.1	- Compressive Strength Test Machine fitted with Load Gauge suitable to test cement mortar - Moulds of size 7.07 x 7.07 x 7.07 cm
6	Size of aggregates Clause 4.2	- Sieve Set IS Sieve Designations : 4.75 mm, 2.36 mm, 1.18 mm. 600 micron, 300 micron 150 micron and 75 micron
7	Weighment of spiral and steel Cylinder (Clause 9.3)	- Weighing balance
8	Boiling Absorption Test on Coating Mortar Clause 11.5	- Steel Scale - Concrete cutter - Drying Oven - Arrangement to boil water - Weighing balance
9	Pressure Permeability Test on Coating Clause 11.6	- Pressure permeability test arrangement as per fig.8 of IS 3597

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 – Each Pipe/ Special shall be marked with following:

- a) Source of identification of the manufacturer or Trademark, if any,
- b) Size and hydrostatic factory test pressure
- c) Date of manufacture
- d) Colour Band at ends (as per clause 12.2)

4. CONTROL UNIT – 50 Pipes / Specials of the same type or part thereof of same factory test pressure, size and coating, manufactured continuously on consecutive days under similar conditions of manufacturing and from same source of raw material 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.

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
(ONLY FOR GUIDANCE PURPOSE)

(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	Material						
4.1	Cement	4.1	IS 15155	S	One	Each consignment	Cement received shall be ISI marked and accompanied with test certificate.
4.2	Aggregates	4.2	IS 15155 IS 383	S	One	Once in year for each size.	Additional sample shall be tested wherever there is change in source of raw material.
4.3	Water	4.3	IS 15155 IS 456	S	One	Once in a year or whenever there is a change in source of water, whichever is earlier	
4.4	Admixtures (if used)	4.4	IS 15155 IS 9103	S	One	Each consignment	No further testing is required if accompanied with test certificate or ISI marked.
4.5	Reinforcement	4.5	IS 15155	S	One	Each consignment	Reinforcement material received shall be ISI marked and accompanied with test certificate.
4.6	Steel for cylinders, joint rings and specials	4.6	IS 15155	S	One	Each consignment	Steel shall be ISI marked and accompanied with test certificate
4.7	Rubber sealing rings	4.7	IS 15155	S	One	Each size and source	No further testing is required, if received with test certificate or ISI marked.
4.8	Bitumen or other protective coating	4.8	IS 15155	-	One	Each consignment	Coating shall be declared by manufacturer and comply with requirements specified.
5	Dimensions and tolerances	5.1, 5.2 and 13.1	IS 15155	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
6	Joint dimensions	6 and 13.1	IS 15155	R			

7	Design criteria	7.3 to 7.5	IS 15155	-			
8	Manufacture	8.1 to 8.4	IS 15155	-			
8.2.1	Compression Test on mortar Cubes	8.2.1	IS 15155	R	One consisting of 3 cubes from each consignment of cement	Supply of cement executed against order spread over up to three months shall be taken as one consignment for this test only. One sample may be tested in a month in case same mix is used for different size/pressure rating of pipes.	
9	Specials						
9.1	Fabrication	9.1	IS 15155	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
9.2	Lining and Coating	9.2	IS 15155	R			
9.3	Reinforcement	9.3	IS 15155	R			
10	Workmanship and finish						
10.1	Deviation from straightness	10.1 13.1.5	IS 15155	R	Firm to have adequate in-process controls to check compliance of this parameter as per the tolerances given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity.		
10.2	Finish	10.2	IS 15155	R			
11.1	Hydrostatic test for steel cylinder of pipe	11.1	IS 15155	R	Each steel cylinder with joint rings welded to its ends		-
11.2	Pipe test at factory	11.2	IS 15155	R	One	Each Control Unit	If a pipe fails the test, then a further two pipes from the same batch of 50 shall be tested. If both pipes pass then the batch shall be accepted. If one or both pipes fail then (the batch shall be rejected or) each pipe in the batch shall be tested for individual approval.
11.3	Permeability test on coating	11.3	IS 15155	R	Three	Each Control Unit	If any pipe fails, the test shall be repeated on twice the number of pipes originally tested and the lot shall be accepted, if all pipes pass the test. Where re-test is not satisfactory, all pipes from that lot may be tested individually and only those with satisfactory results shall be accepted.

11.5	Boiling Absorption Test on Coating Mortar	11.5	IS 15155 & IS 3597	R	Three samples on same day from same working shift	Once in a week	-
11.6	Pressure Permeability Test on Coating	11.6	IS 15155 & IS 3597	R	One	Each 10th Control Unit	-