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उत्पाद मैनुअल
सर्पिल वेल्डीत पाइप –विशिष्टि
IS 5504: 2025 के अनुसार

**Product Manual for
Spiral Welded Pipes-Specification
According to IS 5504: 2025**

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.	भारतीय मानक संख्या IS No.	:	IS 5504:2025
	शीर्षक Title	:	Spiral Welded Pipes
	संशोधनों की संख्या No. of amendments	:	0
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	No specific requirement. 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 Annex-A
c)	नमूने का परिमाण Sample Quantity	:	Chemical composition – 5 pcs of 5cm x 5cm Physical tests - one full length pipe or 6 mtrs

		In case of larger diameters, for FS drawn, tests for Dimensions and Hydraulic test shall be carried out in factory itself. 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 (in case of market surveillance, effort may be made to procure the required quantity of product sample, as far as possible since raw material sample may not be available in market)
d)	परीक्षण अनुरोध में घोषित किए जाने वाले पैरामीटर Parameters to be Declared in Test Request	Grade Designation, Dimensions, Thickness, Welding Process : Note: Apart from the above, any other requirements/parameters may also be declared as per the standard, as applicable.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	: Please refer to Annex- B
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	: Please refer to Annex- C
5.	एक दिन में संभावित परीक्षण Possible tests in a day	
	All tests. 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:	
	IS 5504: 2025 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिए प्रदान किया जाता है "Licence is granted to use Standard Mark as per IS 5504: 2025 with the following scope:	
7.	उत्पाद का नाम Name of the product	Spiral Welded Pipes
	Grades Designation	WT 330, WT 410 and WT 450
	Dimensions (OD and Thickness)	OD from ...mm to ...mm Thickness upto and including ...mm
	Welding Process	SAW,....

ANNEX-A
TO PRODUCT MANUAL FOR
Spiral Welded Pipes
According to IS 5504:2025

GROUPING GUIDELINES

1. Specification for Spiral Welded Pipes according to IS 5504: 2025 is classified on the basis of the following:

- Welding Process and Minimum Tensile Strength
- Size range

2. Accordingly, following grouping based on quality of product, shall be followed for considering grant of licence/change in licence scope as per IS 5504: 2025: -

Three samples preferably of minimum, intermediate and maximum size (One from each Welding process and Grade Designation) intended to be covered under the licence shall be tested for all the requirements of the specification.

3. Tests for dimensions and hydrostatic test for larger diameters shall be carried out in factory since it is difficult to draw and transport pipes of larger diameter.

4. It shall however be ensured that firm has necessary manufacturing capabilities and testing facilities for the entire sizes/processes proposed to be covered under scope of BIS Certification.

5. During the operation of license, BO shall ensure that all sizes /processes covered in the license are drawn for independent testing on rotation over a period of time.

ANNEX – B

LIST OF TEST EQUIPMENTS
(INDICATIVE LIST, FOR GUIDANCE ONLY)

Major test equipment required to test as per requirements of Indian Standard.

Sl. No.	Test Equipment/Chemicals and Identification Numbers (Where applicable)	Tests Used in with Clause Reference
1	Rough Polishing Machine, Cutting Machine, Fine Polishing Machine, Grinder Machine	Preparation of specimen
2	Instrumental methods Spectrometer: atomic-absorption spectrometry, inductively coupled plasma atomic emission, inductively coupled plasma mass spectrometry techniques, spark source optical emission spectrometry. Spectrophotometer	6.1,6.2 (C,S,P elements content)
3	Strohlein or Leco apparatus with all attachments Barometer with chart, Hot plate, Muffle furnace, Complete range of glass wares, measuring cylinders, Desiccator, porcelain boats or ceramic crucibles, Thermometer, Electronic Balance, Distilled Water, Hot air oven, Oxygen - 99.5 percent minimum purity, ether or acetone Standard Reference Material (NML) with certificate Reagents for C: tin granules or pure iron fillings, acidulated water/brine water, methyl red, caustic potash Reagents for S: Ceramic boats/crucibles – desiccators, Fluxes - Low sulphur copper, tin or iron, Dilute hydrochloric acid, Starch Iodide solution, Potassium iodate	6.1,6.2 (C& S, chemical method, alternative to instrumental method)
4	Weighing balance, Heater/ Heating element along with energy regulator, Ice water bath, Vol Flask Cap – 1 litre, (Whatman) filter paper No. 040, Suction Filtration Facility, Filter paper pulp pad, Standard Reference Material (NML) with certificate Potassium Permanganate (KMnO ₄), Sodium Nitrite (Na ₂ NO ₃), Ammonium Molybdate [(NH ₄) ₂ Mo ₂ O ₇], Ammonium Phosphate [(NH ₄) ₃ PO ₄], Potassium Nitrate (K ₂ NO ₃), Phenolphthalein Solution, Rectified spirit or methyl alcohol, Sodium Hydroxide (NaOH), Hydrofluoric Acid (HF), Perchloric Acid (HClO ₄), Sulphurous Acid, Hydrobromic Acid (HBr), other chemicals and reagent as applicable	6.1,6.2 (Phosphorus content, chemical method, alternative to instrumental method)
5	Universal Testing Machine (UTM), Class-1 accuracy or better as per IS 1608	Tensile Test (7.1)

6	Hydraulic Press or UTM with two parallel platens, which can be subjected to compressive loading to flatten pipes	Flattening Tests (for ERW pipes) (7.2)
7	Hydraulic Press or UTM with guided bend test Jig having roller shoulders	Submerged Arc Weld Tests (for SAW pipes) (7.3)
8	Hydrostatic testing machine Fitted with calibrated pressure gauges, sealing devices for each end of the pipe of various dia, water injecting/pumping system.	Hydrostatic Test (8)
9	Vernier Calipers, Steel scale, Micrometer (screw) gauge or other suitable device, Measuring Tape	Length (9.1), Thickness and Diameter (9.2), Ovality (9.2.3) & Finish (10)
10	Any suitable NDT equipment as per agreement between the manufacturer and the purchaser	Non-destructive test (8.2)- Optional

Note: The above is an indicative list for the purpose of guidance only

ANNEX- C SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that during operation of BIS licence, manufacturers will implement a Quality Assurance Plan (QAP) i.e. a plan of regular testing and in-process controls, designed to ensure that the product bearing the Standard Mark conforms to all requirements of the Indian Standard.

1.2 The manufacturers shall define a Quality Assurance Plan (QAP) defining the control unit (i.e. lot/batch etc.), the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and declare the arrangement for testing i.e. whether in-house or subcontracting/sharing for each applicable test and submit the same to BIS Branch Office for information. The manufacturer shall comply with the QAP and maintain test records in accordance with para 2.1.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of control unit is: For the purpose of this scheme, 200 lengths of pipes or part thereof of same size & thickness manufactured in a shift shall constitute one control unit.

1.3.2 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in Table 1. Manufacturer has the discretion of declaring their own levels of control or accept the levels of control given in this document.

1.3.3 The manufacturer shall ensure inspection and testing as per the Quality Assurance Plan submitted by them on the whole production of the factory which is covered by this plan.

2. ENSURING COMPLIANCE THROUGH TESTING- manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard for which they may have in-house test facilities. However, there is no obligation to maintain in-house laboratory. Licensee may use alternative arrangements for tests of the production as per the declared QAP. Various alternatives are available for operation of BIS certification as given below and the relevant guidelines for availing such relaxations by the manufacturers, as amended from time to time, are to be referred:

- i) Shared testing resources like common facility,
- ii) Cluster based testing facility,
- iii) Sub-contracting to outside laboratories which may either be:
 - a) BIS recognised/empanelled laboratories, or
 - b) Any accredited laboratory as per ISO/IEC 17025

2.1 TEST RECORDS- The manufacturers shall maintain test records for the tests carried out (either in-house or at a sub-contracted or at shared test facility) to establish conformity of the product to the Standard for operation of licence. For the tests being subcontracted or conducted at a shared test facility, test results issued by the laboratories or test facilities, shall be made available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the license and Licence Number (i.e. CM/L...) shall be suitably incorporated on each Pipes and on the test certificate issued along with each consignment, provided always that the product thus marked and packed conforms to all the requirement of the specification.

3.1 Packing and Marking shall be done as per the Indian Standard.

3.2 Additional Marking requirements: Additionally, the following shall also be marked on each Package of the material:

- a) “For BIS certification details please visit www.bis.gov.in”
- b) Any other requirement not specified in the Indian Standard

4. TEST CERTIFICATE – For each consignment of BIS Certified material conforming to IS 5504:2025 there shall be a test certificate which shall contain the Standard Mark, the cast/Control Unit number and the corresponding test results (as given in Annexure-I enclosed).

5. REJECTION - The production which conforms to the Indian Standard and covered under the scope of this licence shall be marked with the Standard Mark. 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
(Recommended Levels of Control by BIS- For Guidance Only)

(1)				(3)		(4)
TEST DETAILS				LEVELS OF CONTROL		REMARKS
Clause	Requirements	Test Method		No. of Samples	Frequency	
		Clause	Reference			
6	Chemical Composition					
	Ladle analysis	6.1	Relevant parts of IS 228 IS 5504	One	Each Heat	Applicable only for manufacturers with steel making facilities
	Product analysis	6.2		One	Each Heat	No product analysis is required for identified material received with BIS standard mark and test certificate.
7.1	Tensile Tests	7.1 7.1.1 7.1.2 7.1.3, 7.1.3.1	IS 5504 IS 1608 Pt.1	One	Each Control Unit	—
7.2	Flattening test (for ERW Pipes)	7.2, 7.2.1, 7.2.2	IS 5504	Two (for single lengths) Four (for multiple lengths)	One sample for each end of each single length One each from starting and finishing ends and 2 intermediate rings for every multiple lengths	—
7.3	Submerged Arc Weld Tests (For	7.3, 7.3.1.1	IS 5504	Four	Each Control Unit	—

	submerged Arc welded pipes)	7.3.1.2, Fig.2, 3				
8	Hydrostatic test	8.1, 11	IS 5504	Each Pipe	Each Pipe	Records of pipes repaired shall be maintained.
8	Non-destructive test	8.2	IS 5504	As agreed between manufacture and purchaser		
9	Permissible Variation in Dimensions i) Lengths, Diameters ii) Thickness and Ovalities	9.1, 9.2, 9.2.1, 9.2.2, 9.2.3	IS 5504	One	Every Hour (for pipes of each size)	In case the sample fails in further retesting then each pipe shall be checked for conformance before marking.
10	Finish	10	IS 5504	Each Pipe	Each Pipe	—
12	Protective Coating to outside surface (if provided)	12	IS 5504	Each Pipe	Each Pipe	If specified by the purchaser.

Annexure-I
(Para 4 of the Scheme of Inspection and Testing)
XYZ IRON AND STEEL COMPANY
(Registered office Address and works address)

ISI Mark
With IS No.
and CM/L
no.

Test Certificate for Spiral Welded Pipes
According to IS 5504:2025
TEST CERTIFICATE NO. _____

To M/s _____ Dated _____

We certified that the material described below fully conforms to IS 5504:2025 Chemical composition and Physical properties of the product as tested in accordance with the Scheme of Inspection and Testing contained in the BIS Certification Marks Licence No. CM/L _____ are as indicated below against each order No.

(PLEASE REFER TO IS 5504:2025 FOR DETAILS OF SPECIFICATION REQUIREMENTS)

TEST RESULTS

Order No. & Date	Grade designation	Nominal OD and Thickness	Control Unit No.	Qty in tonnes	Length, Ovality	No. of pipes	Mechanical Properties			Chemical Composition	Bend Test#	Hydraulic Pressure Test	Flattening@	Coating*	Optional*
							YS	%EL	UTS						

SAW Pipes. @ERW Pipes

*as required by purchaser

Remarks
Wagon No.
Truck No.

FOR XYZ IRON AND STEEL COMPANY

(It is suggested that size A4 paper be used for this test Certificate)