

**PRODUCT MANUAL FOR
Hollow Steel Sections for Structural Use — Specification (Second Revision)
According to IS 4923:2017**

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 4923:2017
	Title	:	Hollow Steel Sections for Structural Use — Specification (Second Revision)
	No. of amendments	:	NIL
2.	Sampling Guidelines		
a)	Raw material	:	Seamless hollow sections shall be manufactured from steel made by any approved process which shall show not more than 0.040 percent of Sulphur and 0.040 percent of Phosphorus. The welded hollow sections shall be manufactured from hot rolled steel strip conforming to IS 10748. Note:-Copper bearing steel may be used in manufacturing the hollow sections to achieve weather resistant properties subject to mutual agreement between the manufacturer and the purchaser. In this case copper content shall be between 0.20 to 0.35 per cent
b)	Grouping Guidelines	:	Please refer Annex – A
c)	Sample Size	:	Mechanical Test : 1 meter Chemical test : 5 pcs of 5cm x 5cm (for OES) or 50 gm drillings for testing by chemical method (IS 228)
3.	List of Test Equipment	:	Please refer Annex – B
4.	Scheme of Inspection and Testing	:	Please refer Annex –C
5.	Possible tests in a day	:	All tests
6.	Scope of the Licence :		
	Licence is granted to use Standard Mark as per IS 4923:2017 with the following scope:		
	Name of the product	Hollow Steel Sections for Structural Use	
	Designation	Dimensions (Dx B), Thickness (t), Cold/Hot Formed (CF/HF), Square/rectangular hollow sections (SHS/RHS)	
	Manufacturing process	Seamless/ERW/HFIW etc.	
	Grade	Yst 210 etc.	

ANNEXURE A
PRODUCT MANUAL FOR
Hollow Steel Sections for Structural Use — Specification (Second Revision)
According to IS 4923:2017

GROUPING GUIDELINES

- a) The sections covered under IS 4923 may be divided in four groups for drawing samples:

Depth of Section (D)	Number of samples
i) upto & including 38 mm	One sample for each Grade and Section (i.e. square/rectangular)
ii) Greater than 38 mm & upto & including 63.5 mm	-do-
iii) Greater than 63.5 mm & upto & including 100 mm	-do-
iv Greater than 100 mm	-do

- b) Lower grades may be included in case samples have been drawn from higher grade.
- c) It shall be ensured that applicant/licensee has complete manufacturing and testing facilities for the sizes/thickness/grades for SHS & RHS Sections.
- d) RO/BO shall ensure that samples of sizes/grades which have been covered in the licence without testing are drawn at the earliest for independent testing during course of operation of the licence.
- e) During the operation of the licence, samples of all varieties covered shall be drawn in rotation
- f) Availability of requisite manufacturing and testing facilities for the varieties to be covered shall be ensured.

ANNEXURE B
PRODUCT MANUAL FOR
Hollow Steel Sections for Structural Use — Specification (Second Revision)
According to IS 4923:2017

LIST OF TEST EQUIPMENT

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

Sr. No.	Test Equipment	Tests used in with Clause Reference
1)	Device for instrumental chemical analysis such as Optical Spectrometer with all requisite channels, certified reference materials etc. OR Equipment, Apparatus and reagents as per as per the relevant parts of IS 228 in case of analysis as per IS 228	Chemical analysis of steel used for making hollow sections, Cl 7.1
2)	Universal Testing Machine (UTM) as per IS 1608, class 1 accuracy or better.	Mechanical Test, Cl 15 of IS 4923
3)	<ul style="list-style-type: none"> i) Vernier caliper gauge or any other suitable device ii) Steel scale iii) Micrometer (screw) gauge or other suitable device iv) Feeler gauges, Go/No-Go gauges v) Spirit Level and horizontal flat surface 	Dimension, Cl 10 of IS 4923
4)	Platform balance or any other suitable instrument	Weight, Cl. 9 and Table 1 and Table 2

The list above is meant for guidance and may not be taken as exhaustive.

ANNEXURE C
PRODUCT MANUAL FOR
Hollow Steel Sections for Structural Use — Specification (Second Revision)
According to IS 4923:2017

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 equipments.

2. TEST RECORDS –The manufacturer shall maintain test records for the tests carried out to establish conformity.

3.PACKING AND MARKING– The Standard Mark, as given in the Schedule of the licence, shall be prominently and indelibly applied at a suitable place on the outside surface of the hollow sections provided always that hollow section so marked conform to requirements of the specification.

3.1 Packing and Marking shall be done as per the provisions of IS 4923. In addition, the following details shall be marked on a label attached to each bundle or stencilled on each section:

- i) Designation, grade, supply condition and no. of sections in the bundle
- ii) Batch No. (to enable traceability to factory records)
- iii) Net weight
- iv) BIS Licence Number CM/L—and
- v) BIS website details i.e. “For details of BIS certification please visit www.bis.gov.in”

4. CONTROL UNIT – Material or part thereof representing the same heat, manufactured under identical conditions to same hollow sections of the same nominal dimensions 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 Standards and covered by the licence should be marked with Standard Mark.

7. 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. 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. Any rejected material which is potentially resalable be sheared or cut or deformed in such a manner that it cannot be used for any other purpose. A separate record shall be maintained giving information on quantity and batch number/control unit number, as applicable, relating to all such rejections/defective/substandard material of the production not conforming to the requirements of the Specification and the method of its disposal. Such material shall in no case be stored together with that conforming to the Specification. The Standard Mark (if already applied) on rejected material should be defaced.

TABLE 1
LEVELS OF CONTROL

(Para 5 of Scheme of Inspection and Testing)

(1) Test Details			(2) Test equipment requirement	(3) Levels of Control		
Cl.	Requirement	Test Methods Clause Reference	R: required (or) S: Sub-contracting permitted	No. of Sample	Frequency	Remarks
7.1	Raw material	IS 228 or any other established instrumental /chemical methods	S	1	Each Heat in consignment	No testing is required if material is ISI marked
9	Dimension and weight	Cl. 10 of IS 4923	R	1	Every half an hour.	Non-conforming sections should be segregated and pieces conforming to the specification may be marked.
10	Straightness, Outside Dimension, Thickness, concavity/convexity squareness of sides, external corner radius and twist	10.1,10.2, 10.3.,10.4, 10.5,10.6 10.7,14.1 & 17.1 IS 4923	R	-do-	-do	
11	Oiling, Painting or galvanizing	-	-	-	-	As per the agreement between the manufacturer and purchaser
15	Mechanical Test	Cl 15.1 of IS 1608	R	1	Each 500 hollow section or part there of	In case the sample fails, two further samples from the same lot shall be tested. If any of the additional samples tested fails to meet the requirement of the specification then entire lot shall not be marked



PM/ IS 4923/ 1/ April 2019

Note-1: Whether test equipment is required or sub-contracting is permitted in column 2 shall be decided by the Bureau and shall be mandatory. 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.