



**उत्पाद मैनुअल
घनत्व हाइड्रोमीटर के लिए विशिष्ट
IS 3104 (Part 1) : 1982
के अनुसार**

**PRODUCT MANUAL
SPECIFICATION FOR DENSITY HYDROMETERS
ACCORDING TO IS 3104 (Part 1) : 1982**

विभिन्न उत्पादों के लिए भारतीय मानक ब्यूरो (अनुरूपता मूल्यांकन) विनियम, 2018 की योजना- I के तहत प्रमाणन के संचालन में अभ्यास और पारदर्शिता के संचालन में पारदर्शिता सुनिश्चित करने 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 लाइसेंस/प्रमाणपत्र 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 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.	उत्पाद Product	:	IS 3104 (Part 1) : 1982
	शीर्षक Title	:	घनत्व हाइड्रोमीटर के लिए विशिष्ट SPECIFICATION FOR DENSITY HYDROMETERS
	संशोधनों की संख्या No.of amendments	:	01
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	The bulb and the stem shall be made of a suitable transparent glass, selected and processed to be as free as possible from stress and visible defects, and having a coefficient of cubical thermal expansion of $(25 \pm 2) \times 10^{-6} (^{\circ}\text{C})^{-1}$.
b)	समूहीकरण दिशानिर्देश Grouping Guidelines	:	1. If the Applicant /Licensee applies for two or more series, testing to be done for each series separately 2. If the Applicant /Licensee applies for two or more reference temperature, testing to be done for each reference temperature separately 3. If the Applicant /Licensee applies for two or more Standard Categories of Surface Tension, testing to

			be done for each Standard Categories of Surface Tension.
c)	नमूने का आकार Sample Size	:	1 No.
3.	परीक्षण उपकरणों की सूची List of Test Equipment	:	कृपया ANNEX – A देखें Please refer ANNEX – <u>A</u>
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	कृपया ANNEX – B देखें Please refer ANNEX – <u>B</u>
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	All the tests mentioned in the IS are possible to be carried out in a day.		
6.	लाइसेंस का कार्यक्षेत्र /Scope of the Licence :		
	IS 3104 (भाग 1) : 1982 के अनुसार मानक मुहर का उपयोग करने के लिए लाइसेंस निम्नलिखित कार्यक्षेत्र के लिये प्रदान किया जाता है Licence is granted to use Standard Mark as per IS 3104 (Part 1) : 1982 with the following scope :		
	Name of the product	DENSITY HYDROMETERS	
	Series/Sub-series	L20, L50, M50, M100, S50, L50SP, M50SP, S50SP	
	Range	As applicable	
	Reference temperature	As applicable	
	Standard Categories Of Surface Tension	Low/Medium/High	

ANNEX-A

**LIST OF TEST EQUIPMENTS
FOR SPECIFICATION FOR DENSITY HYDROMETERS
ACCORDING TO IS 3104 (Part 1) : 1982**

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1	Cl. 9.2 Loading Material & Cl. 9.3 Scale Strip	Hot air oven
2	Cl. 10- WORKMANSHIP AND FINISH	Vernier caliper/ Dial caliper, Micrometer, Magnifying glass, Scale
3	Cl. 11- PRINCIPAL DIMENSIONS	Vernier caliper/ Dial caliper, Micrometer, Magnifying glass, Scale
4	Cl. 12- Scale	Vernier caliper/ Dial caliper, Micrometer, Magnifying glass, Scale
5	Cl. 13- Accuracy	Distilled water, Hydrometer vessel, Thermometer

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

ANNEXURE-B

**SCHEME OF INSPECTION AND TESTING FOR
SPECIFICATION FOR DENSITY HYDROMETERS
ACCORDING TO IS 3104 (Part 1) : 1982**

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. PACKING AND MARKING – The Standard Mark, as given in the Schedule of the licence, shall be clearly and indelibly marked on each Hydrometer, provided always that material to which this mark is thus applied, conform to every requirement of the specification.

3.1 Marking – Each Hydrometer and their packaging shall be clearly and indelibly marked to give the information as per clause 14.1 of IS 3104 (Part 1). In addition, the following details shall be marked legibly and indelibly:

- a) BIS Licence No. CM/L..... and
- b) BIS website details i.e. – “For details of BIS certification please visit www.bis.gov.in” (in case of space constraints, may be marked only on the package).

3.2 Packing – The material shall be packed as per Cl. 14.2 of IS 3104 (Part 1).

4. CONTROL UNIT – For the purpose of this scheme all hydrometers of same size, same series/sub-series and same range produced in one day from same batch of raw materials 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.

TABLE1

LEVELS OF CONTROL
Para 5.0 of the Scheme of Inspection and Testing

(1)				(2)	(3)		
Test Details				Test equipment requirement R: required (or) S: Sub-contracting permitted	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
9.1	Bulb and stem	9.1	IS 3104 (Part 1) : 1982	S	one	Each consignment	No testing is required if consignment is accompanied with Supplier or Manufacturer's Test Certificate indicating conformity to the specified requirement.
9.2	Loading Material	9.2, 10.3	IS 3104 (Part 1) : 1982	R	2 Nos	Each control unit	
9.3	Scale Strip	9.3	IS 3104 (Part 1) : 1982	R	2 Nos	Each control unit	
10	Workmanship And Finish	10.1, 10.2., 10.3, 10.4, 10.5, 10.6, 10.7, 10.8, 10.9	IS 3104 (Part 1) : 1982	R	As per table 5 of IS 3104 (Part 1) : 1982	Each control unit	
11	Principal Dimensions	11.1 & 11,2	IS 3104 (Part 1) : 1982	R	As per table 5 of IS 3104 (Part 1) : 1982	Each control unit	
12	Scale	12.1	IS 3104 (Part 1) : 1982	R	As per table 5 of IS 3104 (Part 1) : 1982	Each control unit	

12.2	Graduation Lines	12.2.1, 12.2.2, 12.2.3, 12.2.4, 12.2.5, 12.2.6	IS 3104 (Part 1) : 1982	R	As per table 5 of IS 3104 (Part 1) : 1982	Each control unit	
12.3	Sequence of Graduation Lines	12.3.1, 12.3.2, 12.3.3	IS 3104 (Part 1) : 1982	R	As per table 5 of IS 3104 (Part 1) : 1982	Each control unit	
12.4	Figuring of Graduation Lines	12.4.1, 12.4.2, 12.4.3, 12.4.4, 12.4.5,	IS 3104 (Part 1) : 1982	R	As per table 5 of IS 3104 (Part 1) : 1982	Each control unit	
12.5	Extension of Scale	12.5	IS 3104 (Part 1) : 1982	R	As per table 5 of IS 3104 (Part 1) : 1982	Each control unit	
13	Accuracy	2	IS 3104 (Part 1) : 1982	R	As per table 5 of IS 3104 (Part 1) : 1982	Each control unit	Hydrometers in the special sub-series be supplied with certificates of correction.

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 for approval by BO Head.