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उत्पाद मैनुअल

सिंचाई उपकरण -उत्सर्जक — विशिष्टि

13487: 2024 के अनुसार

**PRODUCT MANUAL FOR
IRRIGATION EQUIPMENT- EMITTERS — SPECIFICATION
ACCORDING TO IS 13487: 2024**

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 13487 : 2024
	शीर्षक Title	:	Irrigation Equipment- Emitters
	संशोधनों की संख्या No. of amendments	:	NIL
2.	नमूना दिशानिर्देश Sampling Guidelines		
a)	कच्चा माल Raw material	:	Material to be in accordance to with Cl 5.3 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	:	Emitters of each Installation category, each Uniformity category and each Emitter type shall be tested to be covered in the scope of licence. Nominal Emission rate to be declared

c)	नमूने का परिमाण Sample Quantity	:	50 number of samples, of each type and category to be drawn and to be sent to laboratory along with all the details as per cl.10 of IS 13487 for complete testing. 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	:	1. Flow Paths in Emitter 2. Emitter type 3. Range of Working Pressures 4. uniformity categories: 5. Nominal Test Pressure, 6. Range of Regulation (for regulated emitter type) 7. Single outlet/multiple outlet emitter 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 - A
4.	निरीक्षण और परीक्षण की स्कीम Scheme of Inspection and Testing	:	Please refer to Annex - B
5.	एक दिन में संभावित परीक्षण Possible tests in a day		
	1. Emitter ends 2. Construction and workmanship 3. Flow paths in emitter 4. Resistance to Hydrostatic pressure 5. Emitter pull out 6. Uniformity of emission rate 7. Emission rate as a function of inlet pressure 8. Determination of emitter exponent 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 13487: 2024 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 13487: 2024 with the following scope:		
	उत्पाद का नाम Name of the product	Irrigation Equipment- Emitter	

	Installation category	In-Line Emitter/On-Line Emitter
	Uniformity categories	Uniformity category A or uniformity category B
	Emitter type	Regulated, and/or Unregulated, turbulent flow, and/or Unregulated, laminar flow, and/or Unregulated, capillary or orifice flow
	Nominal Emission rate (q_n)	Unregulated Emitter Nominal Emission Rate Regulated Emitter Nominal Emission Rate Multiple-outlet Emitter Nominal Emission Rate

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ANNEX– A

LIST OF TEST EQUIPMENTS

(INDICATIVE LIST, FOR GUIDANCE ONLY)

S. No	Clause No. & Requirement		Test Facility (Equipment, Reference Material etc.)
1	5.2	Emitter ends	Vernier
2	6.2	Test conditions	Water bath with arrangement to maintain requisite temp, filter with nominal aperture of 75 µm to 100 µm (micrometre) (160 to 200 mesh)
4	7.2	Flow paths in emitter	Digital Vernier / Travelling microscope
5	7.3	Resistance to Hydrostatic Pressure	Pressure Testing Machine set up, pressure guage, stopwatch
6	7.4	Emitting Pull Out Test	Arrangement for maintaining temperature of 27 ° C ± 1 ° C., Pull Out Tester/ dead weights
7	8.1	Uniformity of Emitting Rate	Emitter Testing Machine set up, Timer, Measuring Jars
8	8.2	Emission rate as a function of inlet	Same as cl 8.1
9	8.3	Determination of emitter quotient	Same as cl 8.1

ANNEX B

SCHEME OF INSPECTION AND TESTING

1. QUALITY ASSURANCE PLAN

1.1 It is expected that manufacturers (licensees/applicants) will implement a Quality Assurance Plan 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 defining the control unit (i.e. lot/batch etc.) and the levels of control (i.e. the frequency and number of samples for conducting the different tests as per the Indian Standard) and submit the same to BIS Branch Office for information. The manufacturer shall comply with the same and maintain test records in accordance with para 2.4.

1.3 RECOMMENDED LEVELS OF CONTROL/CONTROL UNIT:

For the guidance of manufacturers, the recommended definition of control unit is: All the emitters of the same variety, manufactured in a day

1.3.1 For the guidance of manufacturers in preparing the Quality Assurance Plan, recommended levels of control are given in **Table 1**.

1.3.2 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. Alternatively, the manufacturer has the option of adherence to the quality plan as per levels of control recommended in column 3 of Table 1.

1.4 However, all manufacturers shall ensure compliance of their products to all the requirements of the Indian Standard.

2. ENSURING COMPLIANCE THROUGH TESTING- It is expected that manufacturers (licensees/applicants) will establish a suitably equipped and staffed in house laboratory (In house testing facility) for testing at least those parameters of the Indian Standard which require routine testing for ensuring quality of the product. This includes in-process controls as may be defined and put in place by the manufacturer and testing parameters/requirements which can only be performed in the factory.

2.1 For the guidance of manufacturers, Table 1 giving the recommended levels of control is given below. Column 2 of Table 1 indicates routine tests where test equipment is required in house as "R" or other tests which can be subcontracted as "S". Subcontracting is permitted to BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.2 For MSME manufacturers, the requirement of maintaining a laboratory/in-house testing facility for routine tests (indicated as "R" in Column 2 of Table 1) is also optional.

2.2.1 MSME manufacturers may utilize common cluster based facilities as per guidelines for the utilization of cluster based test facilities by MSMEs or the provisions of Sharing of testing facilities or get testing done from BIS recognized/empaneled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025.

2.3 Large Scale manufacturers shall maintain an in-house laboratory equipped at least with test facilities for routine tests (indicated as “R” in Column 2 of Table 1), where different tests given in the specification shall be carried out in accordance with the method given in the specification. They shall also implement a calibration plan for the in-house test equipment.

2.3.1 Alternatively, in lieu of an in-house laboratory, large scale manufacturers can also utilize the provisions of Sharing of testing facilities as per the Guidelines for Grant of Licence available on BIS website www.bis.gov.in. (Under Conformity Assessment>Product Certification Process). Even for subcontracted tests, provisions for sharing of testing facilities can be utilized.

2.4 TEST RECORDS- The manufacturers maintaining an in-house laboratory or utilizing common cluster based facilities or shared test facilities shall maintain test records for the tests carried out to establish conformity. For the tests being subcontracted to BIS recognized/empanelled laboratory or any other laboratory having valid NABL accreditation as per IS/ISO/IEC 17025, test reports issued by the laboratories shall be available for inspection by BIS.

3. PACKING AND MARKING - The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on each package containing the emitters provided always that the material so marked conforms to each requirement of the specification.

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

3.2 **Additional Marking requirements:** The package may also be marked with the following additional requirement:

a) “For BIS certification details please visit www.bis.gov.in”

4. REJECTION - All 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
(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 Method Cl. Ref.	Test Method IS		No. of Sample	Frequency	Remarks
5.2	Emitter ends	5.2	IS 13487	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		Applicable when PE pipe is used and for in line emitter
5.3	Materials	5.3	-do-	S	-	Each consignment	Raw material supplier's certificate to be obtained.
7.1	Construction and workmanship	7.1	-do-	R	Firm to have adequate in- process controls to check compliance of this parameter given in the Indian Standard. However, appropriate records shall be maintained by the manufacturer for evidence of conformity		
7.2	Flow paths in emitter	7.2	-do-	R			
7.3	Resistance to Hydrostatic pressure	7.3.1, 7.3.2 & 7.3.3	-do-	R	One	Each control unit	
7.4	Emitter pull out	7.4.1 & 7.4.2	IS 13479 / IS 13487	R	-do-	-do-	
8.1	Uniformity of emission rate	8.1.1, 8.1.2 & 8.1.3	IS 13487 -do- -do-	R	-do-	-do-	
8.2	Emission rate as a function of inlet pressure	8.2.1, 8.2.2 & 8.2.3	-do-	R	-do-	Once in a week	
8.3	Determination of emitter exponent	8.3 & 8.3.1	-do-	R	-do-	-do-	