



## PRODUCT MANUAL FOR FINNED TYPE HEAT EXCHANGER FOR ROOM AIR CONDITIONER ACCORDING TO IS 11329:2018

*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.	<b>Product</b>	:	IS 11329: 2018
	<b>Title</b>	:	Finned Type Heat Exchanger for Room Air Conditioner
	<b>No. of Amendments</b>	:	One
2.	<b>Sampling Guidelines:</b>		
a)	<b>Raw material</b>	:	As per Cl. 5 of IS 11329
b)	<b>Grouping guidelines</b>	:	Please refer ANNEX – A
c)	<b>Sample Size</b>	:	One
3.	<b>List of Test Equipment</b>	:	Please refer ANNEX – B
4.	<b>Scheme of Inspection and Testing</b>	:	Please refer ANNEX – <a href="#">C</a>
5.	<b>Possible tests in a day :</b>		
	(i) Visual Inspection (ii) Assembly leakage test		
6.	<b>Scope of the Licence :</b>		
	“Licence is granted to use Standard Mark as per IS 11329 with the following scope:		
	Name of the product	Finned Type Heat Exchanger for Room Air Conditioner	
	Type	1) Fin pack with collar and tube type, Tube material- , Fin material- Aluminium 2) Micro channel tube with continuous fin type	

**ANNEX A**

**Grouping Guidelines**

1. The following parameters are taken into consideration for evolving the grouping guidelines for certification of Finned type heat exchangers for room air conditioners as per IS 11329: 2018

Classification based upon construction:

- a) Fin pack with collar and tube type
  - b) Micro channel tube with continuous fin type
2. Any variety of heat exchanger from each classification shall be tested to cover the entire range of variety from that classification.

However, separate sample for each material of tube used shall be tested considering the classification based on tube material. Manufacturer shall declare the material used for tube.

3. The scope of license may be restricted based on manufacturing and testing capabilities of the manufacturer.
4. During the operation of license, it shall be ensured that all varieties covered in the license are tested in rotation, to the extent possible.

**ANNEX B****List of Test Equipment***Major test equipment required to test as per the Indian Standard*

<b>Sl. No.</b>	<b>Tests used in with Clause Reference</b>	<b>Test Equipment</b>
1.	Construction, Cl 6.2	Plug gauge, Vernier Caliper
2.	Internal Contamination, Cl 7.1.1	Glass Beaker, Conical Flask, Oven (0-110° C), Balance with resolution 0.0001 g, Paper filter
3.	Leak test, Cl 7.2	Vacuum chamber, Nitrogen Gas cylinder, Helium gas cylinder, dry nitrogen/air source
4.	Burst test, Cl. 7.3.1	Pressure gauge
5.	Fatigue strength test, Cl 7.3.2	Fatigue test assembly
6.	Corrosion Resistance test, Cl 7.4	Apparatus as per IS 9844

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

**ANNEX C**

**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. LABELLING AND MARKING** – As per the Cl. 8 of IS 11329.

**4. CONTROL UNIT** – Each type of Heat Exchanger produced in a day 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.

**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**

(1)				(2)	(3)		
Test Details				Test equipment requirement Required (R) or Sub-contracting permitted (S)	Levels of Control		
Cl.	Requirement	Test Method			No. of Sample	Frequency	Remarks
		Clause	Reference				
5	Materials	5.1, 5.2, 5.3, 6.2.1.5	IS 11329	S	One	Each consignment	No further testing is required, if accompanied with test certificate or ISI marked.
6.2	Construction	6.2	IS 11329	R	One	Every Control Unit	
<b>9.1</b>	<b><i>Type tests</i></b>						
7.1.1	Internal Contamination	7.1.1	IS 11329	R	One	Once in a Week	
7.3	Test for Mechanical Strength	7.3	IS 11329	S	One	Once in a Year for each type	
7.4	Test for Corrosion Resistance	7.4	IS 11329	S	One	Once in a Year	
<b>9.2</b>	<b><i>Routine tests</i></b>						
6.1	Visual inspection	6.1	IS 11329	R	Each unit, Conformity shall be established as per Internal quality management system of the licensee		
7.2	Leak test	7.2.1, 7.2.2, 7.2.3	IS 11329 IS 9902 IS 11329	R	Each Unit. Also see "Note" below Cl. 9.2 of IS 11329		

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: The control unit and levels of control as decided by the Bureau are obligatory, to which the licensee shall comply with.