



**PRODUCT MANUAL FOR
INSTANTANEOUS DOMESTIC WATER HEATER
FOR USE WITH LPG
ACCORDING to IS 15558:2024**

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 15558:2024
	Title	:	Instantaneous Domestic Water Heater for Use with LPG
	No. of Amendments	:	Two
2.	Sampling Guidelines:		
a)	Raw material	:	Clause 5 and 6.6 of IS 15558
b)	Grouping guidelines	:	Each Type of Instantaneous Domestic Water Heater for use with LPG shall be tested for GoL/CSoL
c)	Sample Size	:	One Water Heater
3.	List of Test Equipment	:	Please refer <u>ANNEX – A</u>
4.	Scheme of Inspection and Testing	:	Please refer <u>ANNEX – B</u>
5.	Possible tests in a day	:	All tests
6.	Scope of the Licence	:	Please refer <u>ANNEX – C</u>

BUREAU OF INDIAN STANDARDS
Manak Bhawan, 9, Bahadur Shah Zafar Marg,
New Delhi – 110002

ANNEX - A**List of Test Equipment***Guidance list of major test equipment required to test as per the Indian Standard*

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Mercurous Nitrate Test as per Clause 5.2	a. Mercurous Nitrate, Di-hydrate b. Distilled Water c. Conc. Nitric Acid d. Weighing Balance e. Measuring Cylinders f. Magnifying Glass
2.	Determination of Swelling of Non Metallic materials (Immersion Test) as per Clause 5.3	a. N-Pentane/LPG b. Weighing Balance
3.	Gas Soundness as per Clause 14	a. Air Compressor b. Air pressure gauge c. Leak Test Apparatus d. Bubble leak Indicator e. Water Tank
4.	Water Soundness as per Clause 15	a. Hydraulic pump b. Pressure Gauge
5.	Thermal efficiency as per clause 16 and Time for Temperature rise as per Clause 25	a. Weighing Balance and Weight Box b. Thermometer c. Overhead Water Tank. d. Test set up for Thermal Efficiency e. Measuring Jar f. Gas Cylinder g. Stop Watch
6.	Combustion Test as per Clause 17	a. Digital CO (Carbon mono-oxide) Indicator b. Orsett Apparatus c. Pipette d. Chemicals, Measuring cylinders and Chemical Balance, wash bottle e. Gas collecting Hood
7.	Gas Consumption as per Clause 18	a. Calibration Bottle b. Air Compressor c. Gas Flow Meter d. Thermometer e. Pressure Gauge f. Barometer g. Stop watch h. Air testing apparatus with empty air tank

8.	Ignition and Flame Travel as per Clause 19 and Flame Stability as per Clause 20	a. Gas cylinder b. Burner c. Pressure Gauge d. Gas Flow Meter
9.	Flash Back as per Clause 22	a. Burner b. Gas cylinder c. Distilled water d. Gas Flow Meter
10.	Resistance to draught as per Clause 23	a. Rotating Vane Anemometer
11.	Fire Hazard and Limiting Temperature Test as per Clause 24	a. Fire hazard apparatus
12.	Hot water output Test as per Clause 26	a. Thermometer b. Stopwatch c. Measuring Jar
13.	Dimensions	a. Vernier Caliper b. Micrometer c. Dial Caliper d. Thread Gauge e. Scales
14.	To maintain Room- temperature	a. Air Conditioners b. Heat Convector

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

Annex- B**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 AND CONTROL UNIT:

1.3.1 For the guidance of manufacturers, the recommended definition of Control unit is quantity of Water heaters of the same design, material of burners, total gas consumption, type of exhaust (flue or forced), Heat input and Hot water output manufactured during a day.

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 recognized/empaneled 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. LABELLING AND MARKING** – As per the requirements given in IS 15558: 2024. The Standard Mark as given in the Schedule of the licence shall be incorporated legibly and indelibly on the product, provided always that the product so marked conforms to each requirement of the specification.

3.1 Additional Marking requirements: Additionally, the following shall also be marked on product or package :

“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

(1)				(2)		
Test Details				Levels of Control		
Cl.	Requirement	Test Method		No. of Sample	Frequency	Remarks
		Clause	Reference			
4.	General Requirements	4	IS 5116	Manufacturer shall exercise adequate levels of control to ensure that entire production should conform to the Standard. Appropriate records of testing indicating conformity shall be maintained		
		4.1.1 to 4.1.9 4.1.12	IS 15558			
		4.1.10	IS 15558	One	Each Control Unit	---
		4.1.11	IS 15558	One		
5	Materials	5.1	IS 15558	One	Each Consignment	No further testing is required, if accompanied with Test Certificate or ISI Marked. In case of failure, consignment shall not be used in manufacturing.
		5.2	IS15558 IS 2305	Two set		
		5.3 & Annex A , 5.4, 5.5	IS 15558			
		6.2	IS 15558			
6.	Connections	6.3	IS 15558	One	Each Consignment	
		6.4	IS 15558 IS 554			
		6.6 18	IS 15558 IS 5116	One		

7	Flame Visibility	7	IS 15558	Each water heater	---	---
8	Gas Taps	8	IS 15558			
9	Flame Failure Device	9.1 & 9.2 Annex E 14.1	IS 15558 IS 5116			
10	Ignition Device	10	IS 15558			
19	Ignition & Flame Travel	19	IS 15558			
11	Protection against overheating	11	IS 15558	Each water heater		
14	Gas Soundness	14 16	IS15558 IS 5116			
15	Water Soundness	15	IS 15558			
20	Flame Stability	20	IS 15558			
21	Noise Control	21	IS 15558			
22	Flashback	22	IS 15558	One	Each Control Unit	
	TYPE TESTS					
5	Material	5.4	IS 15558	Two	Once in a month for each type manufactured in the month	
16	Thermal Efficiency	16 & Annex B	IS 15558	One		In case of failure, sample from three consecutive control units shall be tested. The original frequency may be restored only if these samples pass.
17	Combustion Efficiency	17 & Annex C	IS 15558	One		

18	Gas Consumption	18	IS 15558	Three	Each Control Unit	In case of failure, six more water heaters shall be drawn and tested. In case of any further failure, all the pieces in the control unit shall be checked and only those found conforming shall be marked.
23	Resistance to draught	23	IS 15558	One	Once in a month for each type manufactured in the month	In case of failure, sample from three consecutive control units shall be tested. The original frequency may be restored only if these samples pass.
24	Fire Hazard & Limiting Temperature	24 23	IS15558 IS 5116	One		
25	Time for temperature rise	25 & Annex D	IS 15558	One		
26	Hot Water Output test	26 & Annex C	IS 15558	One		

ANNEX – C**SCOPE OF THE LICENCE**

Licence is granted to use Standard Mark as per IS 15558:2024 with the following scope:	
Name of the Product	Instantaneous Domestic Water Heater for use with Liquefied Petroleum Gas
Type	(a) Total Gas consumption in g/h. (b) Hot water output in litres/min (c) Heat Input (kW)