

**ASSE International
Product (Seal) Listing Program**

**ASSE 1084-2018
Performance Requirements for Water Heaters with Temperature Limiting Capacity**

Manufacturer: _____

Contact Person: _____ **E-mail:** _____

Address: _____

Laboratory: _____ **Laboratory File Number:** _____

Model # Tested: _____

Model Size: _____

Additional models report applies to: _____

Additional Model Information (i.e. orientation, series, end connections, shut-off valves)

Date models received by laboratory: _____ **Date testing began:** _____

Date testing was completed _____

If models were damaged during shipment, describe damages:

Prototype or production sample? _____

Were all tests performed at the selected laboratory? Yes No

If offsite, identify location: _____

General information and instructions for the testing engineer:

The results within this report apply only to the models listed above.

There may be items for which the judgment of the test engineer will be involved. Should there be a question of compliance with that provision of the standard, a conference with the manufacturer should be arranged to enable a satisfactory solution of the question.

Should disagreement persist and compliance remain in question by the test agency, the agency shall, if the product is in compliance with all other requirements of the standard, file a complete report on the questionable items together with the test report, for evaluation by the ASSE Seal Control Board. The Seal Control Board will then review and rule on the question of compliance with the intent of the standard then involved.

Documentation of material compliance must be furnished by the manufacturer. The manufacturer shall furnish to the testing agency, a bill of material which clearly identifies the material of each part included in the product construction. This identification must include any standards which relate thereto.

Section I

1.0 General

1.1 Application

Does the device meet the application?

Yes No Questionable

If no or questionable, explain _____

1.2 Scope and Purpose

1.2.1 Description

Does this device conform to this section?

Yes No Questionable

If no or questionable, explain _____

1.2.2 Connections

Do the pipe threads and other connections comply with the local plumbing codes?

Yes No Questionable

If no or questionable, explain _____

1.2.3 Maximum Working Pressure

What is the maximum working pressure of the water heater? _____ psi (_____ kPa)

1.2.4 Minimum Flow Rate

Is the water heater integral to plumbing supply fittings?

Yes No Questionable

If questionable, explain _____

If no, what is the minimum rated flow rate? _____ gpm (_____ L/s)

For water heaters designed into fixture fittings, are the flow rates in accordance with ASME A112.18.1 / CSA B125.1?

Yes No Questionable N/A

If no or questionable, explain _____

1.2.5 Maximum Flow Rate

Were the maximum flow rates of the water heater at given temperature rises included in the manufacturer's literature?

Yes No Questionable

If no or questionable, explain _____

1.2.6 Water Heater Standards

Do electrical controls comply and are they categorized as protective controls with Class B or Class C control functions as defined per UL 60730-1 and UL 60730-2-9, or do they comply with the applicable requirements of UL 353, UL795, or UL 873?

Yes No Questionable

If no or questionable, explain _____

1.2.7 Outlet Temperature Range

What is the hot water setpoint range? _____°F to _____°F (_____°C to _____°C)

What is the maximum water temperature that can be delivered? _____°F (_____°C)

1.2.8 Inlet Temperature Range

What is the inlet water temperature range? _____°F to _____°F (_____°C to _____°C)

1.2.9 Maximum Permissible Temperature Variation

See Section 3.1.

Section II

2.0 Test specimens

2.1 Samples Submitted

How many samples were submitted by the manufacturer for testing? _____

Section III

3.0 Performance Requirements and Compliance Testing

3.1 Maximum Flow and Conditioning Test

3.1.2 Procedure

2) What was the flowing pressure at P1? _____ psi (_____ kPa)

What was the supply water temperature? _____°F (_____°C)

Was the inlet temperature maintained within $\pm 2^\circ\text{F}$ (1.1°C) per T1 for the duration of the test?

Yes No Questionable

If no or questionable, explain _____

Was the inlet pressure maintained per P1 for the duration of the test?

Yes No Questionable

If no or questionable, explain _____

3) What was the setpoint on the water heater's controls adjusted to upon completion of the water heater start up procedure? _____°F (_____°C)

5) After 5 minutes, what was the flow rate? _____ gpm (_____ L/s)

What was the temperature at T1? _____°F (_____°C)

What was the temperature at T2? _____°F (_____°C)

What was the pressure at P1? _____ psi (_____ kPa)

What was the pressure at P2? _____ psi (_____ kPa)

6) Was water flowed per section 3.1.2(4) for 5 minutes?

Yes No Questionable

If no or questionable, explain _____

What was the maximum flow rate? _____ gpm (_____ L/s)

Was the inlet temperature maintained within $\pm 2^\circ\text{F}$ (1.1°C) per T1 for the duration of the test?

Yes No Questionable

If no or questionable, explain _____

What was the maximum temperature variation above or below the set point at T2? _____°F (_____°C)

3.1.3 Is the device in compliance with this section?

Yes No Questionable

If no or questionable, explain _____

3.2 Steady State Temperature

3.2.2 Procedure

2)

- a. For setpoint-adjustable water heaters:
What was the water heater setpoint set to? _____°F (_____°C) or set to _____
What was the cold water supply temperature set to? _____°F (_____°C)
- b. For non-adjustable water heaters:
What was the cold water supply temperature set to? _____°F (_____°C)
- c. Was the cold water supply temperature maintained within $\pm 2^{\circ}\text{F}$ (1.1°C) per T1 for the duration of the test?
 Yes No Questionable
If no or questionable, explain _____
Was the inlet pressure maintained per P1 for the duration of the test?
 Yes No Questionable
If no or questionable, explain _____

- 4) What was the flow rate set to? _____ gpm (_____ L/s)
- 6) What was the outlet temperature of the water heater within 6 inches (152 mm) of outlet? _____°F (_____°C)
What was the accuracy of the temperature measuring device? _____°F (_____°C)
- 7) How long was the test continued for? _____ minutes

Repeat Section 3.2.2(4) through 3.2.2(7) at the maximum flow rate:

- 4) What was the flow rate set to? _____ gpm (_____ L/s)
- 6) What was the outlet temperature of the water heater within 6 inches (152 mm) of outlet? _____°F (_____°C)
What was the accuracy of the temperature measuring device? _____°F (_____°C)
- 7) How long was the test continued for? _____ minutes

3.2.3 Criteria

After the water reached the set temperature in Section 3.2.2(5), what was the maximum temperature variation? _____°F (_____°C)

Is the device in compliance with this section?

- Yes No Questionable

If no or questionable, explain _____

3.3 Pressure and Temperature Variation

3.3.2 Procedure

2)

- b. For water heaters that are not integral to fittings, what was the water heater flow rate set to? _____ gpm (_____ L/s)
- 3) What was the incoming temperature? _____°F (_____°C)
- 4) What was the temperature limit of the water heater set to? _____°F (_____°C)
How long was water flowed for? _____ seconds
- 5) What was the supply flow rate reduced to? _____ gpm (_____ L/s)
How much time did it take to reduce the supply flow rate? _____ seconds
How long was water flowed for? _____ seconds
After the initial 5 seconds, what was the maximum outlet water temperature? _____°F (_____°C)
- 6) What was the supply flow rate returned to? _____ gpm (_____ L/s)

- 7) The incoming water temperature through the water heater was increased linearly from _____°F (_____°C) to _____°F (_____°C) over a period of _____ minutes.
What was the temperature returned to? _____°F (_____°C)
What was the maximum outlet water temperature? _____°F (_____°C)

3.3.3 Criteria

Is the device in compliance with this section?

- Yes No Questionable

If no or questionable, explain _____

Section IV

4.0 Detailed Requirements

4.1 Materials

Does the water heater contact drinking water intended for human ingestion?

- Yes No Questionable

If questionable, explain _____

If yes, does the water heater comply with the applicable requirements of NSF/ANSI 61?

- Yes No Questionable

If no or questionable, explain _____

What is the lead content, by mass, of the solder and fluxes in contact with potable water? _____%

What is the lead content of metal alloys in contact with potable water? _____%

Is the device intended to convey or dispense water for human consumption through drinking or cooking?

- Yes No Questionable

If questionable, explain _____

If yes, what is the weighted average lead content of the fittings and device when evaluated in accordance with the test method specified in NSF/ANSI 372? _____%

4.1.1

Do pipe connections comply with the standards listed in Section 1.3 or per local codes?

- Yes No Questionable

If no or questionable, explain _____

4.2 Installation and Maintenance Instructions

4.2.1

Were instructions for installing, adjusting, and maintaining the device included with each device?

- Yes No Questionable

If no or questionable, explain: _____

4.2.2

Check all those that were found on the installation instructions:

- Inlet connection size.
- Maximum working pressure.
- The statement: "This product complies with ASSE 1084 for X minutes at Y gpm," where X is defined by the manufacturer, and Y is the maximum flow rate per section 3.1.
- Minimum temperature rise and the corresponding maximum flow rate.
- Minimum flow rate and corresponding maximum temperature rise.
- Procedure for adjusting the setpoint outlet temperature of the water heater, if adjustable.
- Pressure losses at maximum and minimum flow rates.

4.3

Identification and Markings

Does the device have the following marked on the label?

- Name of manufacturer or trademark
- Model number

LISTED LABORATORY: _____

ADDRESS: _____

PHONE: _____ FAX: _____

TEST ENGINEER(S): _____

If applicable:

OUTSOURCED LABORATORY: _____

ADDRESS: _____

PHONE: _____ FAX: _____

TEST ENGINEER(S): _____

Scope of outsourced testing: _____

We certify that the evaluations are based on our best judgments and that the test data recorded is an accurate record of the performance of the device on test.

Signature of the official of the listed laboratory: _____

Signature

Title of the official: _____ Date: _____