UL 1453

STANDARD FOR SAFETY

Electric Booster and Commercial Storage Tank Water Heaters

UL Standard for Safety for Electric Booster and Commercial Storage Tank Water Heaters, UL 1453

Sixth Edition, Dated March 29, 2016

Summary of Topics

This revision of ANSI/UL 1453 is being issued to revise Table 45.1 – Maximum acceptable temperature rise, to provide for a maximum temperature rise for phenolic components used as electrical insulation, and editorial corrections.

The revised requirements are substantially in accordance with Proposal(s) on this subject dated March 16, 2018.

Text that has been changed in any manner or impacted by UL's electronic publishing system is marked with a vertical line in the margin.

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The most recent designation of ANSI/UL 1453 as an American National Standard (ANSI) occurred on May 18, 2018. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, and Title Page.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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INTRODUCTION

1 Scope

1.1 These requirements cover electric booster water heaters, electric commercial storage tank water heaters, and remote control assemblies for such heaters, rated 600 volts or less, to be employed in ordinary locations in accordance with the National Electrical Code, NFPA 70, and that meet at least one of the following conditions:

a) Over 120 gallons (454 L) in capacity;

b) Rated over 12 kilowatts; or

c) Equipped with one or more temperature-regulating controls that permit a water temperature of more than 85°C (185°F).

1.2 These heaters are intended for installation in accordance with model mechanical and plumbing codes.

1.3 An electric water heater not exceeding 120 gallons (454 L) capacity, rated no more than 12 kilowatts, and equipped with a temperature-regulating thermostat having no marked dial setting more than 77°C (171°F) and provided with a stop to prevent adjustment to a higher setting, shall be judged in accordance with the requirements in the Standard for Household Electric Storage Tank Water Heaters, UL 174.

1.4 These requirements do not cover electric boilers, commercial cooking appliances, medical and dental equipment, or other electric heating equipment or appliances that are covered in or as part of individual requirements that are separate from this standard. Electrode type boilers are not covered by these requirements.

1.5 In the following text, a requirement that applies only to booster water heaters or to commercial storage-tank water heaters is so identified by a specific reference in that requirement to the equipment involved. Absence of such a specific reference or use of the term water heater indicates that the requirement applies to all of the equipment covered in this standard unless the context indicates otherwise.

2 Components

2.1 Except as indicated in this clause, a component of a product covered by this standard shall comply with the requirements for that component. See the individual sections of this standard for component requirements.

2.2 A component is not required to comply with a specific requirement that:

a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or

b) Is superseded by a requirement in this standard.

2.3 A component shall be used in accordance with its rating established for the intended conditions of use.

2.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

3 Units of Measurement

3.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

3.2 Unless indicated otherwise, all voltage and current values mentioned in this standard are root mean square (rms).

4 Undated References

4.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

5 Glossary

5.1 For the purpose of this standard the following definitions shall apply.

5.2 BOOSTER WATER HEATER – A water heater furnishing hot water from initially heated water, which is usually 60°C (140°F), with the minimum output water temperature being 77°C (171°F).

5.3 ELECTRICAL CIRCUITS –

a) Line Voltage Circuit – A circuit involving a potential of no more than 600 volts and having circuit characteristics in excess of those of a low voltage circuit.

b) Low Voltage Circuit – A circuit involving a potential of no more than 30 volts rms (42.4 volts peak) supplied by a battery or by a standard Class 2 transformer or other transforming device, or by a combination of transformer and fixed impedance having output characteristics in compliance with requirements established for a Class 2 transformer. A circuit obtained by connecting resistance in series with a line voltage supply circuit as a means of limiting the voltage and current is not considered to be a low voltage circuit.