



---

UL 896

**STANDARD FOR SAFETY**

Oil-Burning Stoves

[ULNORM.COM](http://ULNORM.COM) : Click to view the full PDF of UL 896 2016

[ULNORM.COM](http://ULNORM.COM) : Click to view the full PDF of UL 896 2016

UL Standard for Safety for Oil-Burning Stoves, UL 896

Fifth Edition, Dated July 29, 1993

**Summary of Topics**

***This revision of ANSI/UL 896 is being issued to reaffirm approval as an American National Standard. No changes in requirements are involved.***

The revisions are substantially in accordance with Proposal(s) on this subject dated September 30, 2016.

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.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form by any means, electronic, mechanical photocopying, recording, or otherwise without prior permission of UL.

UL provides this Standard "as is" without warranty of any kind, either expressed or implied, including but not limited to, the implied warranties of merchantability or fitness for any purpose.

In no event will UL be liable for any special, incidental, consequential, indirect or similar damages, including loss of profits, lost savings, loss of data, or any other damages arising out of the use of or the inability to use this Standard, even if UL or an authorized UL representative has been advised of the possibility of such damage. In no event shall UL's liability for any damage ever exceed the price paid for this Standard, regardless of the form of the claim.

Users of the electronic versions of UL's Standards for Safety agree to defend, indemnify, and hold UL harmless from and against any loss, expense, liability, damage, claim, or judgment (including reasonable attorney's fees) resulting from any error or deviation introduced while purchaser is storing an electronic Standard on the purchaser's computer system.

ULNORM.COM : Click to view the full PDF of UL 896 2016

No Text on This Page

[ULNORM.COM](http://ULNORM.COM) : Click to view the full PDF of UL 896 2016

**JULY 29, 1993**  
(Title Page Reprinted: November 22, 2016)



**UL/ANSI 896-2004 (R2016)**

1

**UL 896**

**Standard for Oil-Burning Stoves**

First Edition – October, 1936  
Second Edition – October, 1953  
Third Edition – March, 1957  
Fourth Edition – May, 1973

**Fifth Edition**

**July 29, 1993**

This ANSI/UL Standard for Safety consists of the Fifth Edition including revisions through November 22, 2016.

The most recent designation of ANSI/UL 896 as a Reaffirmed American National Standard (ANS) occurred on November 22, 2016. 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>.

UL's Standards for Safety are copyrighted by UL. Neither a printed nor electronic copy of a Standard should be altered in any way. All of UL's Standards and all copyrights, ownerships, and rights regarding those Standards shall remain the sole and exclusive property of UL.

**COPYRIGHT © 2016 UNDERWRITERS LABORATORIES INC.**

ULNORM.COM. Click to view the full PDF of UL 896 2016

No Text on This Page

[ULNORM.COM](http://ULNORM.COM) : Click to view the full PDF of UL 896 2016

## CONTENTS

### INTRODUCTION

1 Scope .....	5
2 Components .....	5
3 Units of Measurement .....	5
4 Glossary .....	5
5 Installation and Operating Instructions .....	9

### CONSTRUCTION

6 Assembly .....	9
7 Enclosure .....	10
8 Baffles .....	11
9 Base .....	11
10 Burners .....	11
11 Casing .....	12
12 Combustion Chamber .....	12
13 Safety Control .....	12
14 Damper .....	12
15 Disposal of Combustion Products .....	12
16 Draft Regulator .....	13
17 Fan Housing and Air Ducts .....	13
18 Fittings and Piping .....	13
19 Flue Collar .....	14
20 Gaskets .....	14
21 Heating Surface Joints .....	14
22 Ignition Means .....	16
23 Radiation Shields .....	16
24 Strainers .....	16
25 Stuffing Boxes .....	16A
26 Sumps .....	17
27 Integral Tanks .....	17
28 Valves .....	19
29 Internal Wiring .....	19
30 Wiring Connections .....	22
31 Wiring Methods .....	23

### ELECTRICAL COMPONENTS

32 General .....	23
33 Enclosure .....	24
34 Motors .....	24
35 Spacings .....	25

**PERFORMANCE**

36	General	26
37	Test Installation	26
37.1	Enclosures	26
38	Instrumentation	28
38.1	Draft	28
38.2	Fuel input	28
38.3	Power measurement	29
38.4	Speed measurement	29
38.5	Temperature measurement	30
39	Combustion Test	33
40	Power Interruption Test	36
41	Air Failure Test	36
42	Overvoltage and Undervoltage Test	37
43	Stability Test	37
44	Sump Capacity Test	38
45	Temperature Test	38
45.7	Initial test conditions	39
45.8	Room heater test	40
45.9	Range Tests	41
46	Stalled Motor Test	43
47	Lighting Test	43
48	Abnormal Draft Test	44
49	Seepage and Burnoff Test	45
50	Closed Dampers Test	46
50A	10-Day Moist Ammonia Air Stress Cracking Test	46

**MANUFACTURING AND PRODUCTION TESTS**

51	General	47
----	---------	----

**MARKINGS**

52	General	48
----	---------	----

ULNORM.COM : Click to view the full PDF of UL 896 2016

No Text on This Page

[ULNORM.COM](http://ULNORM.COM) : Click to view the full PDF of UL 896 2016

This page intentionally left blank.

[ULNORM.COM](http://ULNORM.COM) : Click to view the full PDF of UL 896 2016

## INTRODUCTION

### 1 Scope

1.1 These requirements apply to oil-burning flue-connected room heaters and ranges as defined herein. They may be used where a competent attendant will not be constantly on duty in the room where the appliance is located, while the appliance is in operation. They are required to be equipped with automatic primary safety controls to prevent abnormal discharge of oil at the burner in case of ignition failure or flame failure. They are not intended for use in spaces in which flammable vapors or gases may be present.

1.2 Requirements for the installation and use of oil-burning equipment are included in the Standard of the National Fire Protection Association for the Installation of Oil-Burning Equipment, NFPA No. 31.

1.3 A product that contains features, characteristics, components, materials, or systems new or different from those covered by the requirements in this Standard, and that involves a risk of fire, electric shock, or injury to persons shall be evaluated using the appropriate additional component and end-product requirements to determine that the level of safety as originally anticipated by the intent of this Standard is maintained. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this Standard shall not be judged to comply with this Standard. Where appropriate, revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this Standard.

1.3 revised November 17, 1999

### 2 Components

2.1 Components of an oil burner, except as specified herein, or a gas burner as well as burner and stove accessories such as constant-level oil valves, metering valves, fire pots, etc.; electrical components and materials such as attachment plugs, industrial control equipment, switches, transformers, electrically operated valves, wires, etc.; and other components or parts shall comply with the requirements for those components, except that such requirements may be modified if appropriate for the particular application.

### 3 Units of Measurement

3.1 If a value for measurement is followed by a value in other units in parentheses, the second value may be only approximate. The first stated value is the requirement.

### 4 Glossary

4.1 AIR SHUTTER – An adjustable device for varying the size of the air inlet or inlets regulating primary or secondary air.

4.2 ANTIFLOODING DEVICE – A primary safety control which causes the fuel flow to be shut off upon a rise in fuel level or upon receiving excess fuel, and which operates before the hazardous discharge of fuel can occur.

4.3 APPLIANCE FLUE – The flue passages within the appliance.

4.4 AUTOMATICALLY LIGHTED APPLIANCE – An appliance in which fuel to the main burner is normally turned on and ignited automatically.

4.5 BAFFLE – An object placed in an appliance to direct or to retard the flow of air or flue gases.

- 4.6 BASE – The main supporting frame or structure of an assembly.
- 4.7 BURNER – A device for the final conveyance of fuel or a mixture of fuel and air to the combustion zone.
- 4.8 BURNER, MECHANICAL-ATOMIZING TYPE – A power-operated burner which prepares and delivers the oil and all or part of the air by mechanical process in controllable quantities for combustion. Some examples are air atomizing, high- and low-pressure atomizing, horizontal rotary, vertical rotary atomizing, and vertical rotary wall-frame burners.
- 4.9 BURNER, MECHANICAL-DRAFT TYPE – A burner which includes a power-driven fan, blower, or other mechanism as the principal means for supplying air for combustion.
- 4.10 BURNER, NATURAL-DRAFT TYPE – A burner which depends principally upon the natural draft created in the flue to induce into the burner the air required for combustion.
- 4.11 BURNER, VAPORIZING TYPE – A burner consisting of an oil-vaporizing bowl or other receptacle to which liquid fuel may be fed in controllable quantities; the heat of combustion being used to vaporize the fuel, with provision for admitting air and mixing it with the oil vapor in combustible proportions.
- 4.12 CASING – An enclosure forming the outside of the appliance, no parts of which are likely to be subjected to intense heat.
- 4.13 COMBUSTIBLE CONSTRUCTION – As pertaining to materials adjacent to or in contact with heat producing appliances and flue pipes, steam pipes, and warm air ducts connected thereto, combustible construction shall mean structures made of or surfaced with wood, compressed paper and plant fibers, or other material that will ignite and burn, whether plastered or unplastered. Plastered construction having combustible supports, regardless of the type of lath employed, and gypsum or other wallboard surfaced with combustible material, are classified as combustible construction.
- 4.14 COMBUSTION – As used herein, the rapid oxidation of fuel accompanied by the production of heat, or heat and light. Complete combustion of a fuel is possible only in the presence of an adequate supply of oxygen.
- 4.15 COMBUSTION CHAMBER – The portion of an appliance within which combustion occurs and which is usually part of the heat exchanger.
- 4.16 CONSTANT-LEVEL VALVE – A device for maintaining within a reservoir a constant level of fuel for delivery to the burner.
- 4.17 CONTROL – A device designed to regulate the fuel, air, water, or electrical supply to the controlled equipment. It may be automatic, semi-automatic, or manual.
- 4.18 CONTROL, LIMIT – An automatic safety control responsive to changes in liquid level, pressure, or temperature; for limiting the operation of the controlled equipment.
- 4.19 CONTROL, PRIMARY SAFETY – The automatic safety control intended to prevent abnormal discharge of oil at the burner in case of ignition failure or flame failure.
- 4.20 CONTROL, SAFETY – See Safety Control.

4.21 CONTROL, SAFETY COMBUSTION – A primary safety control responsive directly to flame properties; sensing the presence of flame and causing fuel to be shut off in event of flame failure.

ULNORM.COM : Click to view the full PDF of UL 896 2016

No Text on This Page

[ULNORM.COM](http://ULNORM.COM) : Click to view the full PDF of UL 896 2016