



UL 2106

STANDARD FOR SAFETY

Field Erected Boiler Assemblies

UL Standard for Safety for Field Erected Boiler Assemblies, UL 2106

Second Edition, Dated April 18, 2006

Summary of Topics

This revision to UL 2106 is being issued to remove the reference to the withdrawal date of UL 873 and to address universal upkeep of UL Standards for Safety. These revisions are considered to be non-substantive and not subject to UL's STP process.

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. Changes in requirements are marked with a vertical line in the margin and are followed by an effective date note indicating the date of publication or the date on which the changed requirement becomes effective.

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.

The requirements in this Standard are now in effect, except for those paragraphs, sections, tables, figures, and/or other elements of the Standard having future effective dates as indicated in the note following the affected item. The prior text for requirements that have been revised and that have a future effective date are located after the Standard, and are preceded by a "SUPERSEDED REQUIREMENTS" notice.

No Text on This Page

APRIL 18, 2006

(Title Page Reprinted: March 9, 2015)

1

UL 2106

Standard for Field Erected Boiler Assemblies

First Edition – October, 1994

Second Edition

April 18, 2006

This UL Standard for Safety consists of the Second edition including revisions through March 9, 2015.

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 <http://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 © 2015 UNDERWRITERS LABORATORIES INC.

No Text on This Page

CONTENTS

INTRODUCTION

1 Scope	5
2 General	6
2.1 Terminology	6
2.2 Units of measurement	6
3 Glossary	6
4 Components	9

CONSTRUCTION – MECHANICAL

5 Assembly	10
5.1 General	10
5.2 Moving parts	11
6 Servicing	12
7 Casing	13
8 Radiation Shields or Liners	13
9 Combustion Chamber	14
10 Baffles	14
11 Flue Collar	14
12 Damper and Draft Regulator	14
13 Installation of External Controls and Fittings	15
14 Field Wiring System Connection	16

CONSTRUCTION – ELECTRICAL

15 Controls	16
15.1 Application	16
15.2 Limit control	17
15.3 Primary safety control	18
15.4 Liquid level limit controls	18
15.5 Temperature limit controls	19
15.6 Purge and combustion air monitoring controls	19
16 Field Wiring	19
16.1 General	19
16.2 Leads and terminals	21
17 Internal Wiring	23
17.1 General	23
17.2 Methods	23
17.3 Short-circuit protection	26
18 Separation of Circuits	27
19 Bonding for Grounding	28
20 Servicing and Adjustment	31
21 Electrical Components	32
22 Mounting of Electrical Components	32
23 Electrical Enclosures	33
23.1 General	33
23.2 Doors and covers	36
24 Motors and Motor Overload Protection	37
25 Overcurrent Protection of High-Voltage Control-Circuit Conductors	42

25.1 General	42
25.2 Direct-connected high-voltage control circuit	42
25.3 Tapped high-voltage control circuits	42
25.4 Overcurrent-protective devices	43
26 Overcurrent Protection of Transformers	44
26.1 High-voltage transformers	44
26.2 Low-voltage transformers	45
27 Switches and Controllers	46
28 Capacitors	46
29 Electrical Insulating Material	47
30 Spacings – High-Voltage Circuits	47
31 Spacings – Low-Voltage Circuits	49
32 Accessibility of Uninsulated Live Parts and Film-Coated Wire	49
32.1 General	49
32.2 Boilers having an input in excess of 400,000 Btu/h	52
32.3 Boilers having an input of 400,000 Btu/h or less	55

PERFORMANCE

33 General	58
34 Dielectric Voltage-Withstand Test	59

MANUFACTURING AND PRODUCTION TESTS

35 General	59
------------------	----

MARKING

36 General	60
------------------	----

INSTRUCTIONS

37 Operating and Installation Instructions	63
--	----

APPENDIX A

Standards for Components.....	A1
-------------------------------	----

INTRODUCTION

1 Scope

1.1 These requirements apply to field assembled boiler assemblies that are provided with or are intended for installation with single fuel-gas, single fuel-oil, or combination gas-oil burning equipment.

1.2 These requirements apply to fuel burning equipment which require flame failure and other safeguards and which are intended primarily for commercial and industrial installation.

1.3 Equipment covered by these requirements may be operated without a competent attendant being constantly on duty at the equipment while the burners are in operation.

1.4 The appliance shall be suitable for installation in accordance with the Standards for Installation of Oil-Burning Equipment, NFPA 31, and/or National Fuel Gas Code, NFPA 54, and the National Electrical Code, NFPA 70-1993.

1.5 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 or of electric shock or injury to persons shall be evaluated using appropriate additional component and end-product requirements to maintain the level of safety as originally anticipated by the intent of this standard. A product whose features, characteristics, components, materials, or systems conflict with specific requirements or provisions of this standard does not comply with this standard. Revision of requirements shall be proposed and adopted in conformance with the methods employed for development, revision, and implementation of this standard.

1.6 Equipment covered by these requirements shall be designed, assembled, tested, and inspected in accordance with the requirements of Section I or Section IV of the ASME Boiler and Pressure Vessel Code. Conformance with the code will be determined by application of the "H or "S " stamp and, if applicable the "A " symbol stamp on the appropriate part of the boiler assembly.

1.7 Each field erected boiler shall undergo a final inspection following completion of field assembly, ASME code required testing and inspection, and operational testing. The inspection shall cover all points required by the authority having jurisdiction.