



UL 1090

STANDARD FOR SAFETY

Electric Snow Movers

This is a preview. Click [here](#) to purchase the full publication.

This is a preview. Click [here](#) to purchase the full publication.

UL Standard for Safety for Electric Snow Movers, UL 1090

Seventh Edition, Dated October 5, 2016

Summary of Topics

The revisions of ANSI/UL 1090 dated May 12, 2020 add references to UL 61800-5-1, Standard For Adjustable Speed Electric Power Drive Systems to replace all references to UL 508C, Standard for Power Conversion Equipment; [5.6.4.1](#), and [5.16.4](#).

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.

The new/revised requirements are substantially in accordance with Proposal(s) on this subject dated February 14, 2020.

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.

No Text on This Page

OCTOBER 5, 2016
(Title Page Reprinted: May 12, 2020)



ANSI/UL 1090-2020

1

UL 1090

Standard for Electric Snow Movers

First Edition – August, 1977
Second Edition – March, 1982
Third Edition – December, 1986
Fourth Edition – June, 1994
Fifth Edition – September, 2007
Sixth Edition – October, 2010

Seventh Edition

October 5, 2016

This ANSI/UL Standard for Safety consists of the Seventh Edition including revisions through May 12, 2020.

The most recent designation of ANSI/UL 1090 as an American National Standard (ANSI) occurred on May 1, 2020. 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 © 2020 UNDERWRITERS LABORATORIES INC.

This is a preview. Click here to purchase the full publication.

No Text on This Page

CONTENTS**INTRODUCTION**

| | |
|------------------------------|---|
| 1 Scope | 7 |
| 2 Units of Measurement | 7 |
| 3 Undated References | 7 |
| 4 Glossary..... | 7 |

CONSTRUCTION

| | |
|--------------------------------------------------------------------------------|----|
| 5 Components..... | 9 |
| 5.1 General..... | 9 |
| 5.2 Attachment plugs, receptacles, connectors, and terminals | 10 |
| 5.4 Boxes and raceways | 11 |
| 5.5 Capacitors and filters | 11 |
| 5.6 Controls | 12 |
| 5.7 Cords, cables, and internal wiring..... | 14 |
| 5.8 Cord reels | 15 |
| 5.9 Film-coated wire (magnet wire) | 15 |
| 5.10 Gaskets, seals and tubing | 15 |
| 5.11 Ground-fault, arc-fault, and leakage current detectors/interrupters | 15 |
| 5.12 Insulation systems | 15 |
| 5.13 Light sources and associated components..... | 15 |
| 5.14 Marking and labeling systems | 16 |
| 5.15 Motors and motor overload protection..... | 16 |
| 5.16 Motor overload protection | 18 |
| 5.17 Overcurrent protection..... | 19 |
| 5.18 Polymeric materials..... | 19 |
| 5.19 Power supplies | 19 |
| 5.20 Printed-wiring boards | 19 |
| 5.21 Semiconductors and small electrical and electronic components | 20 |
| 5.22 Supplemental insulation, insulating bushings, and assembly aids | 21 |
| 5.23 Switches | 21 |
| 5.24 Transformers | 21 |
| 5.25 Valves (electrically operated) and solenoids | 22 |
| 6 Frame and Enclosure | 22 |
| 6.1 General..... | 22 |
| 6.2 Metallic enclosures | 23 |
| 6.3 Polymeric enclosures | 23 |
| 6.4 Handles | 23 |
| 7 Accessibility of Uninsulated Live Parts and Film-Coated Wire | 24 |
| 8 Mechanical Assembly..... | 31 |
| 9 Protection Against Corrosion | 33 |
| 10 Supply Connections | 33 |
| 10.1 General..... | 33 |
| 10.2 Flexible cord | 33 |
| 10.3 Attachment plug..... | 33 |
| 10.4 Strain relief..... | 34 |
| 10.5 Bushings | 34 |
| 11 Live Parts | 34 |
| 12 Internal Wiring | 35 |
| 12.1 General..... | 35 |
| 12.2 Insulation | 35 |
| 12.3 Splices and connections | 36 |

This is a preview. Click here to purchase the full publication.

| | | |
|------|---------------------------------------------------|----|
| 13 | Electrical Insulation | 36 |
| 14 | Motors..... | 37 |
| 15 | Switches and Controls..... | 37 |
| 16 | Lampholders..... | 38 |
| 17 | Capacitors | 38 |
| 18 | Spacings | 38 |
| 19 | Grounding | 41 |
| 20 | Controls – End Product Test Parameters..... | 41 |
| 20.1 | General | 41 |
| 20.2 | Auxiliary controls..... | 42 |
| 20.3 | Operating controls (regulating controls) | 42 |
| 20.4 | Protective controls (limiting controls)..... | 43 |
| 20.5 | Controls using a temperature sensing device | 45 |

PROTECTION AGAINST INJURY TO PERSONS

| | | |
|----|-----------------------------------------|----|
| 21 | General | 45 |
| 22 | Enclosures and Guards | 45 |
| 23 | Rotating Parts | 46 |
| 24 | Switches and Controls..... | 46 |
| 25 | Drop Test for Reliability of Parts..... | 47 |

PERFORMANCE

| | | |
|-----|-----------------------------------------------------|----|
| 26 | General | 47 |
| 27 | Leakage Current Test | 48 |
| 28 | Starting Current Test | 49 |
| 29 | Continuity of Ground Connection..... | 50 |
| 30 | Impeller Stopping Test | 50 |
| 31 | Input Test | 50 |
| 32 | Dielectric Voltage-Withstand Test | 51 |
| 33 | Temperature Test | 51 |
| 34 | Resistance to Moisture Test | 54 |
| 35 | Abnormal Operation Test | 58 |
| 36 | Handle Tests..... | 58 |
| 37 | Strain Relief Test..... | 59 |
| 38 | Push-Back Relief Test | 59 |
| 39 | Switches and Controls..... | 59 |
| 40 | Attachment Plug Test..... | 60 |
| 41 | Accelerated Aging Test..... | 62 |
| 42 | Permanency of Marking | 63 |
| 42A | Electrostatic Discharge (ESD) Resistance Test | 63 |

POLYMERIC ENCLOSURES

| | | |
|------|-------------------------------------------------|----|
| 43 | General | 64 |
| 44 | Polymeric Materials Classed Other Than HB | 64 |
| 44.1 | Mold stress evaluation..... | 64 |
| 44.2 | Resistance to impact | 65 |
| 44.3 | Abnormal operation..... | 66 |
| 44.4 | Flame resistance | 66 |
| 45 | Polymeric Materials Classed HB..... | 67 |
| 45.1 | Mold stress evaluation..... | 67 |
| 45.2 | Resistance to impact | 67 |
| 45.3 | Overload | 67 |

This is a preview. Click here to purchase the full publication.

| | | |
|------|--------------------------------------|----|
| 45.4 | Flame test | 68 |
| 45.5 | Resistance to hot-wire ignition..... | 68 |
| 45.6 | Volume resistivity | 68 |
| 45.7 | High-current arc ignition..... | 68 |

MANUFACTURING AND PRODUCTION TESTS

| | | |
|----|-----------------------------------------|----|
| 46 | Dielectric Voltage-Withstand Test | 69 |
| 47 | Grounding Continuity..... | 70 |

RATINGS

| | | |
|----|---------------|----|
| 48 | General | 70 |
|----|---------------|----|

MARKINGS

| | | |
|----|---------------------------------|----|
| 49 | General | 70 |
| 50 | Identification and Rating | 70 |
| 51 | Fuses..... | 71 |
| 52 | Switches and Controls..... | 71 |
| 53 | Cautionary Markings | 71 |

INSTRUCTIONS

| | | |
|------|-------------------------------------|----|
| 54 | Instruction Manual..... | 72 |
| 54.1 | General | 72 |
| 54.2 | Important safety instructions | 74 |

DOUBLE-INSULATED SNOW MOVERS

| | | |
|----|--------------------|----|
| 55 | General | 77 |
| 56 | Construction | 78 |
| 57 | Marking | 78 |

SUPPLEMENT SA – BATTERY POWERED SNOW MOVERS

| | | |
|-----|------------------------------------|----|
| SA1 | Scope..... | 79 |
| SA2 | Construction and Performance | 79 |