



ANSI/CAN/UL 583:2022

JOINT CANADA-UNITED STATES
NATIONAL STANDARD

STANDARD FOR SAFETY

Electric-Battery-Powered Industrial Trucks

ULNORM.COM : Click to view the full PDF of UL 583 2022



ANSI/UL 583-2022



SCC FOREWORD

National Standard of Canada

A National Standard of Canada is a standard developed by a Standards Council of Canada (SCC) accredited Standards Development Organization, in compliance with requirements and guidance set out by SCC. More information on National Standards of Canada can be found at www.scc.ca.

SCC is a Crown corporation within the portfolio of Innovation, Science and Economic Development (ISED) Canada. With the goal of enhancing Canada's economic competitiveness and social well-being, SCC leads and facilitates the development and use of national and international standards. SCC also coordinates Canadian participation in standards development, and identifies strategies to advance Canadian standardization efforts.

Accreditation services are provided by SCC to various customers, including product certifiers, testing laboratories, and standards development organizations. A list of SCC programs and accredited bodies is publicly available at www.scc.ca.

ULNORM.COM : Click to view the full PDF of UL 583 2022

UL Standard for Safety for Electric-Battery-Powered Industrial Trucks, ANSI/CAN/UL 583

Eleventh Edition, Dated December 15, 2022

Summary of Topics

This new edition of ANSI/CAN/UL 583 dated December 15, 2022 has been issued to reflect the latest ANSI and SCC approval dates, and to incorporate the proposals dated June 10, 2022 and September 9, 2022.

The requirements are substantially in accordance with Proposal(s) on this subject dated June 10, 2022 and September 9, 2022.

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

[ULNORM.COM](https://ulnorm.com) : Click to view the full PDF of UL 583 2022



ANSI/UL 583-2022

DECEMBER 15, 2022



1

ANSI/CAN/UL 583:2022

Standard for Electric-Battery-Powered Industrial Trucks

The first edition was titled Industrial Gasoline-Tractors. The second and third editions were titled Power-Operated Industrial Trucks (Electric Battery-Powered & Gasoline-Powered). The fourth edition was titled Power-Operated Industrial Trucks.

First Edition – January, 1950
Second Edition – March, 1951
Third Edition – May, 1954
Fourth Edition – November, 1956
Fifth Edition – January, 1971
Sixth Edition – May, 1972
Seventh Edition – December, 1977
Eighth Edition – September, 1991
Ninth Edition – June, 1996
Tenth Edition – August, 2012

Eleventh Edition

December 15, 2022

This ANSI/CAN/UL Safety Standard consists of the Eleventh Edition.

The most recent designation of ANSI/UL 583 as an American National Standard (ANSI) occurred on December 15, 2022. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page, Preface or SCC Foreword.

This standard has been designated as a National Standard of Canada (NSC) on date December 15, 2022.

COPYRIGHT © 2022 UNDERWRITERS LABORATORIES INC.

No Text on This Page

[ULNORM.COM](https://ulnorm.com) : Click to view the full PDF of UL 583 2022

CONTENTS

Preface 7

INTRODUCTION

1 Scope 11
 2 Components 11
 3 Units of Measurement 11
 4 Referenced Publications 11
 5 Glossary 13
 6 Samples 14

TYPE E TRUCKS

CONSTRUCTION

7 General 14
 8 Motors and Electromechanical Brakes 15
 9 Motors 16
 10 Electric Controls 16
 11 Wiring 17
 12 Overcurrent Protection 18
 13 Power Source Compartment or Enclosure 19
 14 Industrial Truck Power Sources 22
 14.1 Lead acid batteries 22
 14.2 Lithium batteries 22
 14.3 Fuel cells 22
 14.4 Electrochemical capacitors 22
 14.5 Onboard battery chargers 23
 15 Power Source Connectors 23
 16 Lamps, Lampholders, and Horns 23
 16.1 General 23
 16.2 Horns 23
 17 Spacings 24
 17.1 General 24
 17.2 Barriers 25
 18 Low-Voltage Limited Energy Circuit 26
 19 Separation of Circuits 27

PERFORMANCE

20 Abnormal Operation 27
 21 Temperature Test 28
 21.1 General 28
 21.2 Fork-lift and platform-lift trucks 30
 21.3 Load-carrying, fixed-platform trucks 30
 21.4 Tractors 30
 22 Brake Test 31
 23 Dielectric Voltage Withstand 31
 24 Arc-Rupturing Test 32
 24.1 Motor controllers and contactors in motor circuits 32
 24.2 Switches controlling other than motor circuits 32
 24.3 Overload test 33
 25 Burnout 33

26	Solid-State Circuitry	35
27	Marking-Plate-Adhesion Test	35
	27.1 General.....	35
	27.2 Oven aging test	35
	27.3 Immersion test.....	35
	27.4 Standard atmosphere test	35

MARKING

28	Details	35
----	---------------	----

SERVICE MANUAL

29	Instructions	37
----	--------------------	----

TYPE EE TRUCKS

CONSTRUCTION

30	General	37
31	Motors and Electromechanical Brakes	37
32	Electric Controls	37
33	Wiring.....	38
34	Overcurrent Devices.....	38
35	Battery Enclosure	38
36	Static-Discharge Devices	39

PERFORMANCE

37	General	39
----	---------------	----

MARKING

38	Details	39
----	---------------	----

TYPE EX TRUCKS FOR USE IN HAZARDOUS LOCATIONS, CLASS I, DIVISION 1

CONSTRUCTION

39	General	40
40	Wiring.....	40
41	Protection Against Mechanical Sparks	41
42	Motors	41
43	Electric Controls	41
44	Battery Enclosure	41
45	Battery	42
46	Battery Plugs and Receptacles.....	42
47	Wheels and Tires	42

PERFORMANCE

48	General	42
49	Nonmetallic Conductive Tires	43
	49.1 Wheels	43

49.2 Tire specimens43

MARKING

50 Details44

TYPE EX TRUCKS FOR USE IN HAZARDOUS LOCATIONS, CLASS II, GROUP G, DIVISION 1

CONSTRUCTION

51 General46
52 Motors46
53 Battery46
54 Exterior-Surface Temperatures46

PERFORMANCE

55 General46

MARKING

56 Details47

TYPE ES TRUCKS

CONSTRUCTION

57 General48

PERFORMANCE

58 General48
59 Resistors48

MARKING

60 Details49

ELECTRICAL ACCESSORIES FOR FIELD INSTALLATION BY QUALIFIED PERSONNEL

CONSTRUCTION

61 General49

MARKING

62 Details49

BATTERIES FOR INDUSTRIAL TRUCKS

CONSTRUCTION

63 Type E Batteries50

ULNORM.COM : Click to view the full PDF of UL 583 2022

64	Type EE Batteries.....	50
65	Type EO Batteries	50
66	Type EX Batteries.....	50

MARKING

67	Types E, EE, and EO Batteries	50
68	Type EX Batteries.....	51

ANNEX A (Normative) – ELECTRIC-BATTERY-POWERED INDUSTRIAL/COMMERCIAL FLOOR CLEANING MACHINES

GENERAL

A1	Scope	52
A2	Application of Requirements	52

PERFORMANCE

A3	Temperature Test	52
A4	Operation Test for Push Type, Walk Behind Floor Cleaners	52

MARKINGS

A5	Details	52
----	---------------	----

ANNEX B (CAN) (Normative) – FRENCH TRANSLATIONS

ULNORM.COM : Click to view the full PDF of UL 583 2022

Preface

This is the Eleventh Edition of ANSI/CAN/UL 583, Standard for Electric-Battery-Powered Industrial Trucks.

UL is accredited by the American National Standards Institute (ANSI) and the Standards Council of Canada (SCC) as a Standards Development Organization (SDO).

This Standard has been developed in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization.

Annex [A](#) and [B](#) are identified as Normative, as such, form mandatory parts of this Standard.

This ANSI/CAN/UL 583 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Comments or proposals for revisions on any part of the Standard may be submitted at any time. Proposals should be submitted via a Proposal Request in the 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.

To purchase UL Standards, visit the UL Standards Sales Site at <http://www.shopulstandards.com/HowToOrder.aspx> or call tollfree 1-888-853-3503 .

This Edition of the Standard has been formally approved by the UL Standards Technical Panel (STP) on Industrial Trucks, STP 583.

This list represents the STP 583 membership when the final text in this standard was balloted. Since that time, changes in the membership may have occurred.

STP 583 Membership

Name	Representing	Interest Category	Region
Bablo, Joseph	UL Solutions	Testing and Stds Organization	USA
Balek, William	International Sanitary Supply Association	General Interest	USA
Bauer, Andrew	Clearpath Robotics	Producer	Canada
Bender, Curtis	Tennant CO	Producer	USA
Boyajian, M	Engineering Consultants INC	General Interest	USA
Burch, Christopher	FM Approvals LLC	Testing and Stds Organization	USA
Coles, Michael	Advanced Motors And Drives INC	Supply Chain	USA

STP 583 Membership Continued on Next Page