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Energy efficiency of industrial trucks - Test methods - Part 1: General (ISO/DIS 23308-1:2024)

Energieeffizienz von Flurförderzeugen - Prüfverfahren - Teil 1: Allgemeines (ISO/DIS 23308-1:2024)

Efficacité énergétique des chariots de manutention - Méthodes d'essai - Partie 1: Généralités (ISO/DIS 23308-1:2024)

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DRAFT International Standard

ISO/DIS 23308-1

Energy efficiency of industrial trucks — Test methods —

Part 1: General

Efficacité énergétique des chariots de manutention — Méthodes d'essai —

Partie 1: Généralités

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 110, *Industrial trucks*, Subcommittee SC 5, *Sustainability*.

This second edition cancels and replaces the first edition (ISO 23308-1:2020), which has been technically revised.

The main changes are as follows:

— in the Scope truck types according to ISO 5053-1 added and adapted;

— normative references updated;

— in the test report reference to the specific part of ISO 23308 added.

A list of all parts in the ISO 23308 can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

ISO 23308 deals with the energy efficiency of industrial trucks including batteries and battery chargers.

This document contains the procedures to determine the efficiency of trucks, traction batteries and battery chargers. The other parts provide a specific test cycle for different truck types.

NOTE The test cycles are based on the VDI 2198 guideline. This guideline is widely accepted by industry and is used to measure the energy consumption of electric industrial trucks and internal combustion (IC) industrial trucks. The guideline has been in place since 1996 and it is used broadly. This approach provides for the evaluation of the energy efficiency of trucks by comparison.

The content of this document is of relevance for the following stakeholder groups:

— machine manufacturers (small, medium and large enterprises);

— market surveillance authorities;

— machine users (small, medium and large enterprises);

— service providers, for example for consulting activities.

The stakeholder groups above have been given the opportunity to take part in the drafting process of this document. The machines concerned are indicated in the scope of this document.

Energy efficiency of industrial trucks — Test methods —

Part 1: General

1 Scope

This document specifies general test criteria and requirements to measure the energy consumption for self-propelled industrial trucks (hereinafter referred to as trucks) during operation. For electric trucks, the efficiency of the battery and the battery charger is included.

The truck specific requirements in ISO 23308-2, ISO 23308-3, ISO 23308-4 and ISO 23308-6 take precedence over the respective requirements of this document.

This document is applicable to the in-use phase of the product life cycle.

It applies to the following truck types according to ISO 5053-1:

— counterbalance lift truck;

— articulated counterbalance lift truck;

— reach truck (with retractable mast or fork arm carriage);

— straddle truck;

— pallet-stacking truck;

— pallet truck;

— platform and stillage truck;

— end-controlled pallet truck;

— order-picking truck;

— centre-controlled order-picking truck;

— towing tractor,

— pushing tractor

— burden and personnel carrier;

— Lorry-mounted truck;

— towing and stacking tractor;

— side-loading truck (one side only);

— variable-reach container handler;

— counterbalance container handler;

— lateral-stacking truck (both sides);

— lateral-stacking truck (three sides);

— multi-directional lift truck;

— variable-reach truck;

— platform truck;

— double stacker;

— rough-terrain truck;

— rough-terrain variable-reach truck;

— slewing rough-terrain variable-reach truck;

— stacking high-lift straddle carrier.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3691-1:2011, *Industrial trucks — Safety requirements and verification — Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks*

ISO 3691-2:2023, *Industrial trucks — Safety requirements and verification — Part 2: Self-propelled variable-reach trucks*

ISO 5053-1, *Industrial trucks — Terminology and classification — Part 1: Types of industrial trucks*

ISO 15500-1, *Road vehicles — Compressed natural gas (CNG) fuel system components — Part 1: General requirements and definitions*

ISO 23308 (all parts), *Energy efficiency of industrial trucks — Test methods*

IEC 60254-1, *Lead acid traction batteries — Part 1: General requirements and methods of tests*

IEC 62620:2014+AMD1:2023, *Secondary cells and batteries containing alkaline or other non-acid electrolytes — Secondary lithium cells and batteries for use in industrial applications*

EN 589, *Automotive fuels — LPG — Requirements and test methods*

EN 590, *Automotive fuels — Diesel — Requirements and test methods*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5053-1 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
battery
electrical power source consisting of battery cells, connectors of cells, battery controller (if applicable, for example controller for Li-Ion batteries) and battery enclosure that is ready to use in a truck