ILNAS

Institut luxembourgeois de la normalisation
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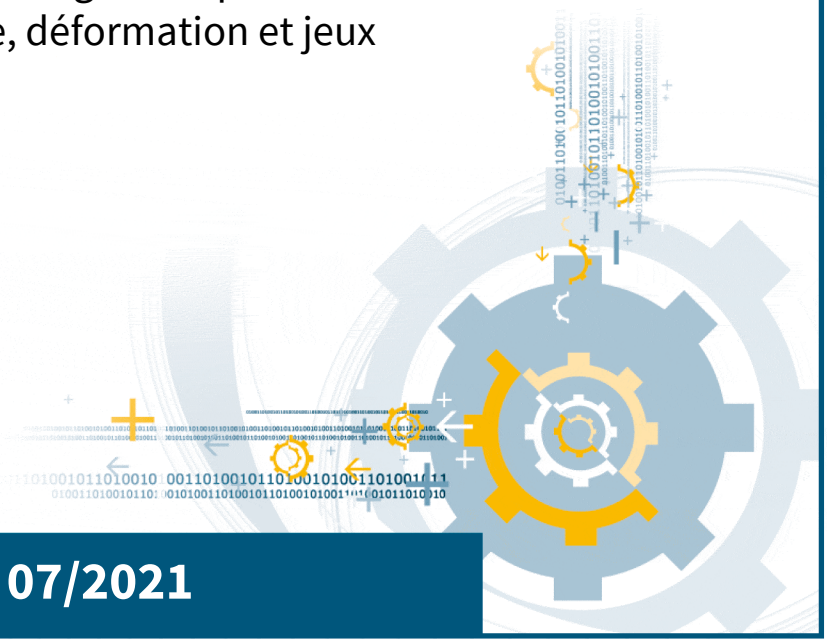
ILNAS-EN 15620:2021

Steel static storage systems - Tolerances, deformations and clearances

Ortsfeste Regalsysteme aus Stahl - Grenzabweichungen, Verformungen und Freiräume

Système de stockage statique en acier — Tolérance, déformation et jeux



07/2021

National Foreword

This European Standard EN 15620:2021 was adopted as Luxembourgish Standard ILNAS-EN 15620:2021.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
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ILNAS-EN 15620:2021

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 15620

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English Version

Steel static storage systems - Tolerances, deformations and clearances

Système de stockage statique en acier - Tolérance, déformation et jeux

Ortsfeste Regalsysteme aus Stahl - Verstellbare Palettenregale - Grenzabweichungen, Verformungen und Freiräume

This European Standard was approved by CEN on 16 May 2021.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (EN 15620:2021) has been prepared by Technical Committee CEN/TC 344 “Steel static storage systems”, the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2022, and conflicting national standards shall be withdrawn at the latest by January 2022.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 15620:2008.

This document includes the following significant technical changes with respect to EN 15620:2008:

— floor tolerances have been removed (reference is made to alternative sources);

— tolerances for Drive-In racking and Cantilever racking have been added;

— tolerances for crane racking have been removed (reference is made to alternative sources);

— the classification system for racking operated by industrial trucks has been removed.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

The determination of the safe load bearing capacity of racking is a structural issue and therefore the Eurocodes are relevant, especially EN 1993 series. The most relevant parts for racking are EN 1993-1-1 and EN 1993-1-3.

In order to have reliable state of the art guidance for those involved in designing these products and due to the differences in the shape of the structural components, detailing and connection types, additional technical information to the Eurocodes is required.

The scope of CEN/TC 344 is to establish European Standards providing guidance for the specification, design, methods of installation, accuracy of build and also guidance for the user on the safe use of steel static storage systems.

This, together with the need for harmonized design rules, was the reason that FEM Product Group Racking and Shelving (FEM R&S) has taken the initiative for the CEN/TC 344. This TC is in the course of preparing a series of European Standards regarding Steel static storage systems.

1 Scope

This document specifies tolerances, deformations and clearances that pertain to the production, assembly and erection and performance under load of pallet racking and cantilever racking. These tolerances, deformations and clearances are important in relation to the functional requirements and ensuring the proper interaction of the handling equipment used by personnel, trained and qualified as competent, in association with the specific type of racking system. The interaction conditions are also important in determining the reliability of the storage system to ensure that the chance of mechanical handling equipment impact, pallet impact or a system breakdown is acceptably low.

This document is limited to:

— single deep adjustable beam pallet racking operated with industrial trucks;

— single and double deep adjustable beam pallet racking operated with stacker cranes;

— drive-in and drive through racking systems operated with industrial trucks;

— cantilever racking systems operated with industrial trucks.

This document does not apply to specialized types of equipment such as automated trucks, miniload, satellite systems, systems involving the use of articulated trucks, trucks using intrusive stacking methods or industrial truck serviced rack-clad buildings.

This document specifically excludes the tolerances and deformation of the industrial trucks, stacker cranes and floors.

It is the responsibility of the specifier in cooperation with the client or user to ensure that the tolerances, deformations and clearances, as quoted in this document are acceptable for safe operation of the overall system considering all factors of influence and the user informed by means such as operation instructions. The specifier can carry out appropriate design/calculations to vary some of the parameters provided that an equivalent safe operation is achieved.

This document gives guidance to be used in conjunction with mechanical handling equipment and floor information.

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.

EN 15512, *Steel static storage systems - Adjustable pallet racking systems - Principles for structural design*

EN 15629, *Steel static storage systems - Specification of storage equipment*

EN 15878, *Steel static storage systems - Terms and definitions*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 15878 and the following apply.

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

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

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

3.1
racking aisle width
minimum dimension measured across the aisle at the floor and at any beam level between the rack structure

3.2
deformation
displacement due to external actions

3.3
gangway
transfer aisle
space for movement or transport which does not give access to the picking or loading faces of the storage racking

3.4
fine positioning
local adjustment of the machine with respect to the rack components in the X and/or Y directions using sensors on the crane and location devices on the rack

3.5
intrusive stacking
placement or retrieval of a unit load where the turning radius or length of an industrial truck is greater than the operating aisle width and part of the storage location concerned is used by the truck forks and load when turning to place or retrieve a unit load

3.6
mechanical handling equipment
MHE
mechanical or electro-mechanical equipment used to transport, lift, pick and deposit unit loads

3.7
free-movement truck
industrial truck that is free to move in any direction in the aisle and make 90 ° turns into the rack face for loading and off loading

3.8
upright protector
component to protect the lower part of uprights against accidental impact from mechanical handling equipment

Note 1 to entry: Can be either free-standing or connected to the upright.