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**ILNAS-EN 15635:2008**



## National Foreword

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ICS 53.080

English Version

## Steel static storage systems - Application and maintenance of storage equipment

Systèmes de stockage statiques en acier - Utilisation et maintenance de système de stockage

Ortsfeste Regalsysteme aus Stahl - Anwendung und Wartung von Lagereinrichtungen

This European Standard was approved by CEN on 5 October 2008.

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## Foreword

This document (EN 15635:2008) 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of an identical text or by endorsement, at the latest by May 2009, and conflicting national standards shall be withdrawn at the latest by May 2009.

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

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

## 0 Introduction

### 0.1 Structural Eurocodes for load-bearing structures and buildings

The Commission of the European Communities (CEC) initiated the work of establishing a set of harmonized technical rules for the design of building and civil engineering works, which would initially serve as an alternative to the different rules in force in the various member states and would ultimately replace them. These technical rules are known as the "Structural Eurocodes".

Because the determination of the safe load-bearing capacity of static storage systems is a structural engineering task, the Eurocodes are relevant, particularly EN 1993-1-1 and EN 1993-1-3, as far as the design is concerned. The codes and guidelines produced by CEN/TC 344 are intended to amplify and clarify the requirements of the Eurocodes since they particularly apply to design while specification, installation and application and maintenance are considered as special requirements for racking and shelving products. This European Standard considers application and maintenance.

### 0.2 Additional European Standards for racking and shelving

Due to the differences in the shape of structural components, detailing and connection types, additional technical information to the Eurocodes is required in order to provide state of the art guidance. This guidance is for the client or consultant specifying the requirement, the designer producing a sound structural design, the installer building the structure and the user who operates and maintains the structure in accordance with the design specification.

This together with the need to provide harmonized design rules, is the reason that the European Racking Federation (ERF) has taken the initiative to support this development of a range of European Standards for specific types of racking and shelving used in specific applications (see bibliography).

### 0.3 Additional information specific to EN 15635

This European Standard gives additional information to that in Eurocodes EN 1990 and EN 1991, to be used in the structural design of storage systems (see also prEN 15512) and is intended for use by:

- a) committees drafting design related product, testing and execution standards;
- b) clients (e.g. for the formulation of their specific requirements);
- c) specifiers, designers, suppliers, installers and end users of the product;
- d) relevant building control authorities.

Expertise in the technical properties of racking components and knowledge of the specific methods of calculation to determine the safe load carrying capacity data for the products shall be available normally from the manufacturer of that product. These standardized products can have infinite variation in their configuration. Structural engineering in steel requires special attention for the cold formed sections normally in use and for flexural and (overall) frame instability. Users should refer to prEN 15512 for more information on these aspects.

Users of storage equipment should refer to EN 15629 to ensure that the specified layout and configuration is not in conflict with the methods of operation, ensuring safe operating conditions in the workplace.

This European Standard deals with these user-defined aspects. A clear user specification for the provision of a safe storage equipment design is an essential basis to provide and complement safe working conditions.

This European Standard is also relevant to specifiers and suppliers.

## 1 Scope

This European Standard gives guidelines for operational aspects relevant to structural safety of storage systems. Such systems operate with heavy mechanical handling equipment working in close proximity to static storage equipment. This European Standard minimizes the risk and consequences of unsafe operation or damage to the structure. Some other forms of storage equipment are only partially covered and further consideration, beyond the scope of this European Standard, can be required.

This European Standard gives guidance in conjunction with prEN 15512, EN 15620, and EN 15629 to ensure that the specifier, user and designer are aware of the constraints in each other's area to allow a safe design to be produced.

This European Standard specifically excludes storage equipment manufactured from materials other than steel (except for certain accessories) and equipment intended to be used for domestic storage purposes

## 2 Normative references

The following referenced documents are indispensable for the application 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 15629, *Steel static storage systems — The specification of storage equipment*

EN 15620, *Steel static storage systems — Adjustable pallet racking — Tolerances, deformations and clearances*

## 3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

### 3.1 adjustable pallet racking APR

steelwork structure consisting of frames and beams adjustable in height, specifically designed to support load make up accessories and unit loads

### 3.2 allowable loading

beam, frame or shelf safe load capacity indicated by the storage equipment supplier to the user on the safe load warning notices based upon the data supplied by the specifier

### 3.3 bay load

total allowable weight of all the unit loads in a bay of racking not including any unit loads that can be stored on the floor of the bay

### 3.4 clearance

nominal dimension between items

### 3.5 compartment load

load, which can be loaded into one compartment of a rack or shelving structure from one side



**3.6****competent person**

person who by means of a combination of training, experience and education has the knowledge to carry out the task and safety requirements effectively

**3.7****crane racking**

pallet racking arranged as a very narrow aisle system and operated by a stacker crane running on a rail and laterally supported by the racking structure

**3.8****frame load**

total allowable weight of all the loads transmitted to the frame by the members attached to the frame

**3.9****foundation**

floor construction on which the equipment is erected and to which it is fixed to provide anchorage and stability

**3.10****installer**

trained and qualified as a competent person who assembles and builds the racking at the site location

## NOTE

The installer should be trained and experienced in the work to be done and should be properly supervised and controlled to ensure that the health and safety of workers and others is safeguarded.

**3.11****intrusive stacking**

placement or retrieval of a pallet where the turning radius or length of fixed-fork lift truck is greater than the aisle width and part of the storage location concerned is used by the truck forks and load when turning to place or retrieve a pallet

**3.12****load make up accessory****LMA**

storage unit for the handling of loads by lift trucks

## NOTE

Examples of load make up accessories include pallets, containers, bins, boxes, barrels and stillages

**3.13****mechanical handling equipment****MHE**

equipment used to transport the unit load to be stored

**3.14****pallet**

portable platform, with or without superstructure, for the assembly of a quantity of goods to form a unit load for handling and storage by mechanical appliances

**3.15****pallet buffer back stop**

buffering back stop which is specified as an aid for use by forklift truck drivers to deposit a unit load in the correct position in the racking

**3.16****pallet safety back stop**

safety back stop to prevent accidental collision of a pallet or its load with other unit loads or equipment, when that load is placed in the storage compartment