

Position Paper

Brussels, November 2014



Equipment for Metallurgical Plants and Rolling Mills

Application of 2006/42/EU Machinery Directive (MD) to avoid interference with 305/2011/EU Construction Products Regulation (CPR)

Introduction

EUnited Metallurgy is a sector group of EUnited aisbl, Boulevard A. Reyers 80, 1030 Brussels (Belgium). Register Number BE 874.269.908.

EUnited Metallurgy is the voice of the European suppliers of plants, mechanical and electrical equipment, components, automation solutions and services for

- the processing of raw materials,
- iron-making and other reduction processes,
- steel and non-ferrous metal production,
- casting of steel and non-ferrous metals,
- rolling of flat and long products, metal processing and finishing.

EUnited Metallurgy welcomes policies, which favor the development and testing of industrial innovation in Europe. EUnited Metallurgy invests in European initiatives which spur the performance of metallurgical industries vis-à-vis more sustainable use and re-use of materials and energy.

Aim

This Position Paper aims at:

- clarifying possible misinterpretations and inconsistencies of MD and CPR,
- providing concrete suggestions for establishing a common understanding for a complementary, coherent and consistent interpretation of the conditions of both MD and CPR,
- promoting actions in order to establish a clear interface between MD and CPR.

In this context, EUnited Metallurgy calls regulators and customers to support the statements of this Position Paper.

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Background

Machines and plants of our metallurgical sector are subject to various European Directives. In the first place the Machinery Directive applies. Based on the MD, sector-specific C-type standards have been developed in CEN/TC 322 "Equipment for making and shaping of metals – Safety requirements" (see A.3). Furthermore, the Pressure Equipment Directive, ATEX Directive and the Low Voltage Directive are of particular interest.

The new CPR with its harmonised standards, especially EN 1090 series for the certification and design of steel and aluminum structures, has created new challenges for the manufacturers to overcome when placing their products on the market. Up to today, very different understandings from various stakeholders in regard of the certification of the construction products have been circulating through the industry, without any common statement.

Some experts see a "massive" overlap between the MD and the CPR which remains incomprehensible for EUnited Metallurgy. When constructing machinery on a big scale like EUnited Metallurgy members do (e. g., hot flat rolling mills can be up to 1.5 km long), the inevitable integration of structures into the machine design is necessary (e. g., foundations as machine support which are separated from the building or equipment according to series EN ISO 14122).

According to the information from some stakeholders such structures (like foundations) are to be seen as a separate construction product and shall be subject to the declaration of performance according to the CPR. We could not follow these statements because Doc. CPR 07/04/3 already clarifies the cases where CPR (EN 1090) is not applicable. In addition, it is counterproductive due to the fact that all relevant equipment/structures with regard to machinery are a result of planning, design, calculation and safety technical processes, for which all relevant existing harmonised standards from the generally valid MD have been considered and applied.

Disputed issues: Our point of view!

- 1) The foundation (steel reinforced concrete) represents the structural support for the machine and is therefore an integrated part of it. This is in accordance with Doc. CPR 07/04/3, B.3, 1st indent.
- 2) Fastening means such as anchor bolts, bolts, screws and nuts which function as "interface" from foundation to the machine are not covered by CPR but the material(s) used to build the foundation, like concrete and construction steel.
- 3) Bridges (e. g., over roller tables), stairs, walkways and platforms are related to MD because harmonised B-type standards are covering this kind of equipment and the requirements to use such equipment is covered by C-type standards of CEN/TC 322. In addition, a risk assessment according EN ISO 12100 has to be carried out.

NOTE 1 A visitor walkway in contrast is CPR-related

- 4) All machinery and equipment designed according to the results of the risk assessment are covered by the MD.

Conclusion

As it has been customary for quite a few years now, the declaration of conformity usually states just one main Directive according to which the machine in question has been built. Stipulations that further Directives apply are usually listed as supplementary notice in the declaration of conformity (CE marking) as per Article 3 of the MD.

NOTE 2 In the beginning solely the MD had to be applied for design and construction, although it was already pointed to on any applicable subsequent Directive. Today the MD is embedded in an open system of legal acts of the EU, so that for certain machinery several EU Directives and Regulations may apply. There are no lists of various machinery and their related Directives/Regulations. It is the responsibility of the manufacturer to apply all current related ones.

Manufacturers of metallurgical plants and rolling mills are constructing their machinery and equipment according to the MD and other applicable Directives (not Regulations!), mainly based on harmonised C-type standards and additional applicable harmonised A-/B-type standards. These standards are defining the state-of-the-art.

Only the application of harmonised C-type standards leads to presumption of conformity.

In general and contrary to some statements of stakeholders,

- **the CPR and EN 1090 are NOT applicable to metallurgical plants and rolling mills and**
- **a certification according EN 1090 is NOT necessary for manufacturers of metallurgical plants and rolling mills.**

NOTE 3 Manufacturers of CPR-related equipment like silos of course need a certification

NOTE 4 This position paper is intended as a supplement to the MD and the official MD Technical Guidance Document published by the EU. It is provided as an advisory document and, as such, has no legal standing. Therefore, in conjunction with this position paper, users are advised to consult MD and the official MD Technical Guidance Document and CPR for the legally binding requirements. While every effort has been made to ensure the accuracy of this document, neither EUnited nor the authors of this document accept liability for its content or for the use which might be made of the information herein."

Annex A

A.1 Working Document CPR 07/04/3 of the European Commission, DG Enterprise and Industry

According DG Enterprise and Industry, CPR 07/04/3 is a working document which was distributed to the members of the Standing Committee on Construction in June 2014. It does not constitute a formal position by the Commission on this issue.

Some of the statements of this working document are distilled to FAQs, listed on the website of DG Enterprise and Industry (see A.2).

But nevertheless, the working document in question gives a good overview how to "interpret" the CPR and is therefore listed hereafter for information purposes.

**CASES WHERE THE CE MARKING IS NOT POSSIBLE ON THE BASIS
OF EN 1090-1**

A) Steel and aluminium products which are not covered by the scope of EN 1090-1 therefore CE marking on the basis of EN 1090-1 is not possible:

- Steel and aluminium products which are not produced in the “factory” of the manufacturer (products made on the worksite are not covered by EN 1090-1).
- Components of cast iron, of cast steel and steel forgings
- Rails and sleepers for railway systems
- Blind rivets
- Cabinets for cables and power supply installations
- Cables, ropes and wires
- Castings
- Components for suspended ceilings
- Doors
- Fences and railings
- Flagpoles
- Forgings
- Foundation bolts
- Gates
- Ladders
- Ornamentations
- Piles (non-fabricated)
- Pipelines and pipes
- Pressure vessels
- Rails or sleepers for railway systems
- Reinforcing steel for concrete or masonry
- Roof safety products incl. roof ladders and walkways
- Self-drilling and self-tapping screws
- Site based activities
- Structural components for cranes
- Structural components for offshore structures
- Structural components for wind turbine towers
- Traditional craft type and non-structural components (e. g. weather cocks, letter boxes, bicycle racks, fences).

B) Other products which, even if they are covered by EN 1090-1 they cannot be CE marked under that standard.

Products covered by EN 1090-1 have to CE marked after the coexistence period on the basis of EN 1090-1 **only if they satisfy all the following conditions:**

- they are intended to be used in works which are buildings or civil engineering works, and
- they are incorporated in a permanent manner in the construction works
- they have a structural function in relation to the construction work
- they are not covered by another specific harmonised EN, or by an ETAG or by an ETA.
- they are construction products within the meaning of Article 2(1) of Regulation 305/2011

After applying the above criteria one arrives to the conclusion that the following steel and aluminium products can NOT be CE marked on the basis of EN 1090-1 for the following reasons:

- B.1 Steel and aluminium products **intended to be used use in works which are not buildings or civil engineering works** e.g.:
- for the construction of off-shore oil platforms,
 - for wind turbines and their supporting columns
 - for the construction of oil refineries
- B.2 Steel and aluminium products which are **not incorporated in a permanent manner** in construction works (e.g.):
- scaffoldings
- B.3 Steel and aluminium products **which do not contribute to the satisfaction by the building (or by the civil engineering work) of Basic Work Requirement Nr. 1 Mechanical resistance and stability**, e.g.:
- supports for machines, or for other industrial equipment (because they support the machine not the building)
 - cabinets for cables and power supply installations
 - racking systems (e.g. storage selves)
 - fences without structural role
 - handrails / balustrades
 - ladders
 - ornamentations
 - pressure vessels
 - windows/doors and facade systems without structural role
- B.4 Steel and aluminium products covered by other European technical specifications:**
- B.4.1 Steel and aluminium products specifically covered by **harmonised standards**.
In these cases, there is a specific standard other than EN 1090-1 which is (or will be) the basis for the DoP and for affixing the CE marking on the product.

The list of these standards is given below:

Product	Reference
Steel lighting columns	EN 40-5
Hangers and brackets for masonry	EN 845-1
Steel lintels	EN 845-2
Road parapets, crash barriers, crash cushions	EN 1317-5
Bearings and steel components used in bearings	EN 1337
Metal chimneys	EN 1856-1
Metal liners	EN 1856-2
Hot rolled steel sections	EN 10025-1
Stainless steel strip	EN 10088-4
Stainless steel bars, rods, wire, sections etc	EN 10088-5
Hot finished steel hollow sections	EN 10210-1
Cold-formed steel hollow sections	EN 10219-1
Hot-rolled steel sheet piling	prEN 10248-1
Cold formed steel sheet piling	prEN 10249-1
Steel casting for structural uses	EN 10340
Q and T steels	EN 10343
Workshop fabricated steel tanks	EN 12285-2
Traffic sign supports	EN 12899-1

A.2 Frequently Asked Questions on the Construction Products Regulation (CPR)

The FAQs are listed on the following website of DG Enterprise and Industry:

http://ec.europa.eu/enterprise/sectors/construction/faq/index_en.htm#Q1-3

Question 31 is of special importance for interpretation of the CPR in relation to the MD and is therefore listed hereafter:

31. When does the CE marking have to be affixed on the basis of EN 1090-1:2009+A1:2011 ?

The **CE marking** has to be affixed on a construction product on the basis of the harmonised standard EN 1090-1:2009+A1:2011 when all the following conditions are satisfied:

- the product is covered by the scope of EN 1090-1:2009+A1:2011 (please find the indicative, non-exhaustive [list of products](#) [266 KB] not covered by the scope of EN 1090-1:2009+A1:2011 as provided by CEN),
- and the product is a structural construction product within the meaning of the Construction Products Regulation (EU) 305/2011 which means:
 - the product is intended to be incorporated in a permanent manner in construction works (buildings or civil engineering works), and
 - the product has a structural function in relation to the construction work (i.e. its failure will affect the satisfaction of Basic Work Requirement 1 as detailed in Annex I of Regulation EU 305/2011).
- and the product is not covered by a dedicated European product specification (because if a specific [harmonised EN](#), or an European Technical Approval Guideline (ETAG) or an [European Technical Approval](#), or an [European Technical Assessment \(ETA\)](#) for this product exists, the basis for the CE marking is the relevant specific harmonised EN, or the ETApproval, or the ETAssessment).

Considering the above criteria, especially the last indent "*and the product is not covered by a dedicated European product specification ...*", **one arrives to the conclusion** that the equipment for metallurgical plants and rolling mills is **NOT** covered by the **CPR** but by the MD with their various harmonised product-related (type-C) standards (see A.3 for details).

A.3 List of harmonised C-type Standards developed in CEN/TC 322, Equipment for making and shaping of metals – Safety requirements

- **WG 1 "Steel production"**
 - Secondary Steelmaking EN 14677 [2008]
 - Electric Arc Furnaces EN 14681 [2006+A1:2010]
 - Cont. Casting Machines EN 14753 [2008]
 - Converter *prEN 16774 standards project (!)*
- **WG 3 "Rolling Mills"**
 - Long Products Rolling Mills EN 15949 [2012]
 - Tube Rolling & Forming Mills EN 13675 [2004+A1:2010]
 - Hot Flat Rolling Mills EN 15093 [2009]
 - Cold Flat Rolling Mills EN 15094 [2009]
 - *Finishing Line Equipment. standards project (!)*
- **WG 4 "Strip Processing"**
 - Strip Processing Lines EN 15061 [2007+A1:2008]
- **WG 5 "Extruding / Forging"**
 - Extrusion Presses EN 14656 [2006+A1:2010]
 - Hydr. Hot Forging Presses EN 14673 [2006+A1:2010]

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Equipment for Metallurgical Plants and Rolling Mills

Background Information to Position Paper on

Application of 2006/42/EU Machinery Directive (MD) to avoid interference with 305/2011/EU Construction Products Regulation (CPR)

1. Regulations (like CPR) vs Directives (like MD)

There is a considerable difference between European Regulations and Directives:

- A "Regulation" is a binding legislative act. It must be applied in its entirety across the EU.
- A "Directive" is a legislative act that sets out a goal that all EU countries must achieve. However, it is up to the individual countries to decide how.

2. Harmonised standard

A standard is "harmonised" if it is adopted by one of the European standardisation bodies (CEN, Cenelec, ETSI) and published in the Official Journal (OJ) of the EU.

3. CE marking

The CE marking indicates a product's compliance with EU legislation and so enables the free movement of products within the European market. By affixing the CE marking to a product, a manufacturer declares, on his sole responsibility, that the product meets all the legal safety, health and environmental protection requirements for the CE marking, which means that the product can be sold throughout the European Economic Area (EEA, the 28 Member States of the EU and European Free Trade Association (EFTA) countries Iceland, Norway, Liechtenstein). This also applies to products made in other countries which are sold in the EEA. However, not all products must bear the CE marking, only product categories mentioned in specific EU Directives on the CE marking.

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4. 305/2011/EU Construction Products Regulation

CPR is to ensure reliable information on construction products in relation to their performances. This is achieved by providing a "common technical language", offering uniform assessment methods of the performance of construction products.

a) Article 1 "Subject matter"

"This Regulation lays down conditions for the placing or making available on the market of construction products by establishing harmonised rules on how to express the performance of construction products in relation to their essential characteristics and on the use of CE marking on those products" (and is repealing Council Directive 89/106/EEC).

b) Article 2, construction product definition

A construction product is defined as any product or kit (set of at least two separate components) for incorporation in a permanent manner in construction works or parts of it (buildings or civil engineering works) which has an effect on the performance (expressed by level or class, or in a description) of the construction work.

c) Objective of the CPR

The objective of the CPR is to ensure the free movement of goods in the EEA by a declared Declaration of Performance (DoP) according Annex III.

By affixing the CE marking on a product the manufacturer indicates that he takes responsibility for the conformity of the construction product with the declared performance.

5. Machinery Directive 2006/42/EU

The MD lays down essential health and safety requirements in relation to design and manufacture in order to improve the safety of machinery placed on the market. In order to help manufacturer to prove conformity to these essential requirements, and to allow inspection of conformity to the essential requirements, it is desirable to have harmonised standards.

CE marking shall be affixed. Where machinery is also subject to other Directives relating to other aspects and providing for the affixing of CE marking, the marking shall indicate that the machinery also conforms to the provisions of those other Directives.

For our branch "Metallurgical Plants and Rolling Mills", experts of CEN/TC 322 have developed several safety-related product standards, so called type-C Standards (see Annex 1). All the developed European Standards are harmonised (i. e., published in the OJ). Due to this, the presumption of conformity is given.

6. EN 1090 vs EN ISO 12100

EN 1090-1 "Execution of steel structures and aluminium structures – Part 1: Requirements for conformity assessment of structural components"

The standard EN 1090-1

- is a part of a group of European standards dealing with design and manufacturing of load bearing components and structures made of steel or aluminium.
- deals with provisions for conformity assessment of components which imply conformity to performance characteristics declared by the manufacturer of the components. The components have structural characteristics which make them fit for their particular use and function. The structural characteristics are governed by the design and the manufacture of the components.
- does not contain rules for structural design and manufacture. Such rules are called up from the relevant parts of Eurocode (see NOTE 2.1) for design requirements and from EN 1090-2 (steel) and EN 1090-3 (aluminium) for execution requirements.

- specifies requirements for conformity assessment of performance characteristics for structural steel and aluminium components as well as for kits placed on the market as construction products. The conformity assessment covers the manufacturing characteristics, and where appropriate the structural design characteristics. It covers also the conformity assessment of steel components used in composite steel and concrete structures. The components can be used directly or in construction works or as structural components in the form of kits.
- applies to series and non-series structural components including kits. The components can be made of hot rolled or cold formed constituent products or constituent products produced with other technologies. They may be produced of sections/profiles with various shapes, flat products (plates, sheet, strip), bars, castings, forgings made of steel and aluminium materials, unprotected or protected against corrosion by coating or other surface treatment, e.g. anodising of aluminium.

NOTE 2.1 The Eurocodes (European technical standards) are the Europe-wide means for the structural design of buildings and other civil and engineering works. The Eurocodes cover amongst others the basis of structural design (EN 1990), actions on structures (EN 1991), the design of concrete (EN 1992), composite steel and concrete (EN 1994), steel (EN 1993), masonry (EN 1996) and aluminium structures (EN 1999).

NOTE 2.2 For certain steel and aluminium components, particular specifications for performance and other requirements have been developed. The particular specifications may be issued as an EN or as Clauses within an EN. An example is given in EN 13084-7 for single wall steel chimneys and steel liners. Such particular specifications will take precedence in case of non-compliance with the requirements of EN 1090.

EN ISO 12100 "Safety of machinery – General principles for design – Risk assessment and risk reduction"

The standard EN ISO 12100

- provide designers with an overall framework and guidance for decisions during the development of machinery to enable them to design machines that are safe for their intended use.
- specifies basic terminology, principles and a methodology for achieving safety in the design of machinery.
- specifies principles of risk assessment and risk reduction to help designers in achieving this objective. These principles are based on knowledge and experience of the design, use, incidents, accidents and risks associated with machinery.
- describes procedures to identify hazards and estimate and evaluate risks during relevant phases of the machine life cycle, and for the elimination of hazards or the provision of sufficient risk reduction.
- gives guidance on the documentation and verification of the risk assessment and risk reduction process.
- gives in Annex B in separate tables, examples of hazards, hazardous situations and hazardous events, in order to clarify these concepts and assist the designer in the process of hazard identification.

NOTE 2.3 The practical use of a number of methods for each stage of risk assessment is described in ISO/TR 14121-2.

Bibliography

- [1] Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EC
- [2] Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)
- [3] Guide to application of the Machinery Directive 2006/42/EC, 2nd Edition, June 2010
- [4] CPR 07/04/3 of the European Commission, DG Enterprise and Industry, "Cases where the CE marking is not possible on the basis of EN 1090-1"
- [5] CEN/TC 135, Clarification of Scope of EN 1090-1, TC135 response to request from the European Commission, DG Enterprise and Industry, on the Scope of EN 1090-1
- [6] EN 1090-1, Execution of steel structures and aluminium structures – Part 1: Requirements for conformity assessment of structural components
- [7] EN ISO 12100, Safety of machinery – General principles for design – Risk assessment and risk reduction