

Position Paper

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Interpretation of the Machinery Directive (MD) 2006/42/EC regarding commissioning as part of the process of "putting into service" of metallurgical machinery/plant

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:

- providing concrete suggestions to establish a common understanding for a complementary, coherent and consistent interpretation of the MD regarding "commissioning", and "putting into service" (CE marking) of metallurgical machinery/plant
and
- clarifying different points of understanding regarding commissioning (as a time period, e. g., in situ manufacture, production start-up) and putting into service (as a point in time, i. e., CE marking) according to the MD

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

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1 Background

Machines and plants of our metallurgical sector are subject to various European Directives. In the first place the Machinery Directive 2006/42/EC 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 Annex A).

Furthermore, the Pressure Equipment Directive, ATEX Directive and the Low Voltage Directive are of particular interest.

Metallurgical machinery/plants are assembled and commissioned on site. In this context, the question who is responsible for the commissioning phase and putting into service (CE marking) always needs to be answered. Especially regarding the MD, the consequences are often being controversially discussed.

The commissioning phase of metallurgical machinery/plants is used to check functions and features as provided in the contract as well as the detection and remedy of defects. Because the metallurgical machinery/plant is not CE-marked during the commissioning phase, this phase is under the responsibility of the manufacturer, i. e., the one who is responsible for CE-marking. One exception regarding the responsibility is made for limited production release as described hereafter.

The following statements are intended to contribute to the clarification of these issues.

NOTE For the purposes of this document, the terms and definitions given in EN ISO 12100 and in the harmonised standards of CEN/TC 322 (see Annex A) apply.

2 Terms and definitions

2.1 Metallurgical machinery/plant

Metallurgical machinery/plant (e. g., steel converters, continuous casting machines, hot and cold flat rolling mills, foil rolling mills, strip processing lines, slitting lines, extrusion presses) have to be seen as "assembly of machinery" according to the MD (see Article 2, Definitions, 4th indent of (a)):

- a) assembled together to carry out a common function,
- b) the constituent parts are functionally linked in such a way that each unit affects the operation of other units so that a risk assessment of the whole assembly is necessary, and
- c) the constituent units have a common control system.

NOTE A group of machines that are connected to each other but where each machine functions independently of the others is not considered to be an assembly of machinery according to the MD.

It must be clear, that metallurgical machinery/plant is an assembly of various single machines (e. g., partly completed) according to the C-type standards of CEN/TC 322 (see Annex A). They function together as a whole and thus are to be seen as an assembly of partly completed machinery according to the MD. This assembly of machinery (e. g., a rolling mill plant or a strip processing line) is CE marked as "one machine" and does not require an individual CE marking for each single machine.

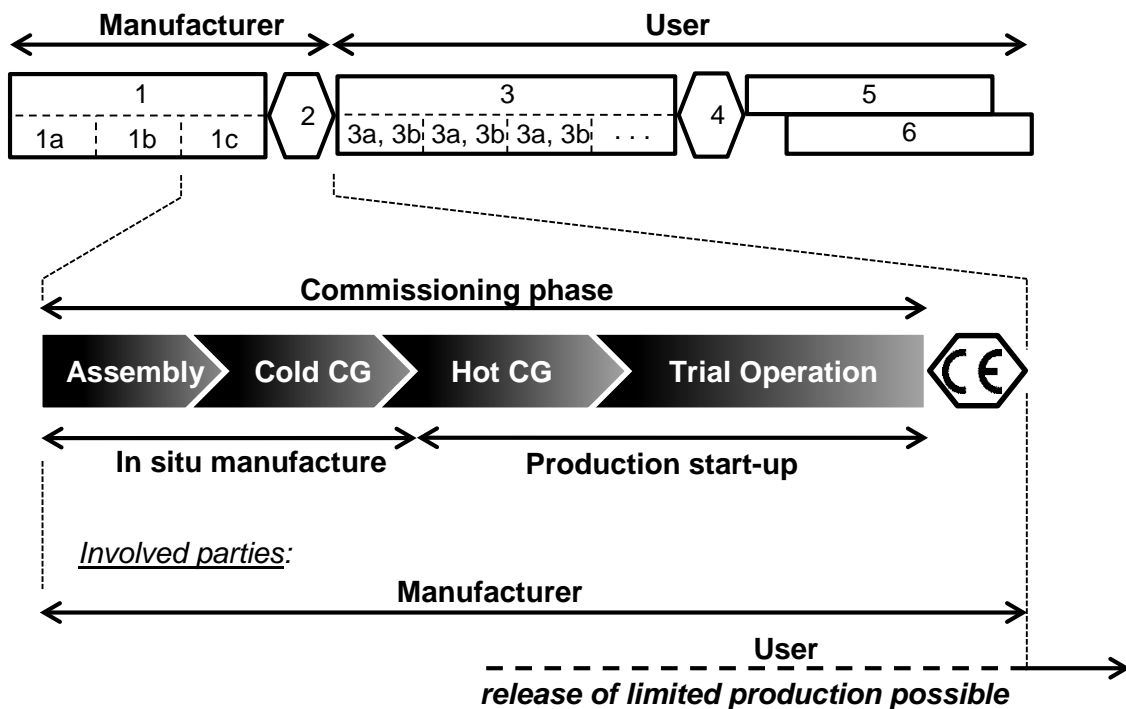
2.2 Important differentiation: Commissioning and putting into service according to MD

The commissioning of a machinery/plant is carried out to check its proper functioning and characteristics, and to identify and eliminate any faults. It is the final testing phase of a machinery/plant and as such is under the responsibility of the manufacturer, even when the machine is in the user's facilities.

In the manufacturing process, the commissioning phase occurs before “putting into service”, i. e., without EC Declaration of Conformity (CE marking).

2.3 Commissioning (CG) in general

Commissioning is a systematic process for achieving, verifying, and documenting that the machinery/plant and its equipment is planned, designed, installed, and tested, and is capable of being operated and maintained in a safe way. In other words, the complete design of the machinery/plant and its equipment is tested. Then, and only then, the machinery/plant and its equipment can be used according to the safety requirements of the MD.



Key

- | | | | |
|----|---|----|----------------------------------|
| 1 | manufacture (time period) | 3 | operation (time period) |
| 1a | design, manufacture, (pre-)assembly
(at the manufacturer's premises) | 3a | production |
| 1b | transport | 3b | setting, adjustment, maintenance |
| 1c | in situ manufacture, production start-up
(at the user's site) | 4 | disabling (point in time) |
| 2 | putting into service (CE marking) (point in time) | 5 | disassembly (time period) |
| | | 6 | disposal (time period) |

Figure 1 — Schematic representation of the commissioning phase (based on, e. g., EN 15093)

2.4 In situ manufacture: Assembly and cold commissioning

Metallurgical machinery/plants will in effect be manufactured in situ from various components. The common element is the bringing together component parts, many of which have been manufactured by others, into a new complete plant.

Some of these component parts may be:

- Complete ready to use CE marked products (e. g., machinery) supplied with a Declaration of Conformity (DoC).
- Complete ready to use products without a CE mark or DoC, because no relevant product Directive applies.
- Partly completed machinery supplied with a Declaration of Incorporation (DoI) intended for incorporation into or assembled with other machinery, other partly completed machinery or equipment, thereby forming a machine.

- d) Safety components or interchangeable equipment (both as defined), and so supplied with a Declaration of Conformity and CE marked.
- e) Components, including basic structural parts, without a CE mark, because no relevant product Directive applies.

2.5 Production start-up: Hot CG and trial operation

2.5.1 General

During production start-up the safety functions are in general not yet guaranteed and supplementary measures shall be established.

2.5.2 Hot CG

Phase where machinery/plant is tested with intended materials using the intended production process.

2.5.3 Trial operation

Phase to meet the basic requirements of the contract regarding dimensions and materials. It is prior to putting into service (CE marking).

NOTE Trial operation should not be mixed-up with the performance test, i. e. the phase to optimise the production to fulfill the contract requirements.

2.5.4 Release of limited production

Handing over the responsibilities to the user for a continued production by the user (e. g., during night shift) during production start-up.

2.6 Putting into service

Before metallurgical machinery/plant is put into service, the manufacturer must ensure that the machinery/plant and any safety systems are set and configured/adjusted so that it is safe and the essential health and safety requirements of the MD are met. This includes CE marking the machinery/plant, issuing a Declaration of Conformity and producing detailed instructions, and providing them to the machinery/plant owner/user.

According to MD 2006/42/EC the following applies for "putting into service":

MD 2006/42/EC, paragraph (12):

(12)
The putting into service of machinery within the meaning of this Directive can relate only to the use of the machinery itself for its intended purpose or for a purpose which can reasonably be foreseen. This does not preclude the laying down of conditions of use external to the machinery, provided that it is not thereby modified in a way not specified in this Directive.

MD 2006/42/EC, Article 2 Definitions, (k):

(k) *'putting into service' means the first use, for its intended purpose, in the Community, of machinery covered by this Directive;*

MD 2006/42/EC, Article 5 Placing on the market and putting into service

1. *Before placing machinery on the market and/or putting it into service, the manufacturer or his authorised representative shall:*

- (a) *ensure that it satisfies the relevant essential health and safety requirements set out in Annex I;*
- (b) *ensure that the technical file referred to in Annex VII, part A is available;*
- (c) *provide, in particular, the necessary information, such as instructions;*
- (d) *carry out the appropriate procedures for assessing conformity in accordance with Article 12;*

- (e) draw up the EC declaration of conformity in accordance with Annex II, part 1, Section A and ensure that it accompanies the machinery;
- (f) affix the CE marking in accordance with Article 16.

3 State of affairs – Our point of view!

3.1 General

It is state-of-the-art that for metallurgical machinery/plant the MD regarding commissioning is only applicable to a limited extent.

The commissioning phase covers also trial production, during which finished/saleable products are produced although the machinery/plant has not yet been put into service. Due to economic reasons it is in the interest of the user to produce already during the commissioning phase, even if the manufacturer is not present (see 3.3).

This Position Paper helps to interpret the steps necessary to release a limited production during the commissioning phase. In this context the following issues shall be considered:

3.2 Trial operation

- a) The trial operation is under the supervision of the manufacturer.
- b) The trial operation is part of the manufacturing process and is prior to putting into service (CE marking).
- c) The machinery/plant may not conform to the requirements of the MD in total.
- d) Alternative measures must be established for the safety of personnel (this applies to the personnel of the manufacturer and user).

3.3 Release of limited production

During commissioning phase certain products are produced according to the intended use. After achieving a certain quality, such products can be sold in the market. In such cases the user often asks for a continued production (e. g., during night shift), although the overall safety of the whole machinery/plant is not yet guaranteed.

To make production in such a situation possible for the user, a release of limited production can be issued by the manufacturer taking into account the following essential prerequisites:

- a) Emergency stop and other basic safety functions shall be ready to function and validated, e. g., firefighting system.
- b) Wherever access is not prevented by guards, danger zones shall be clearly indicated. (e. g., by temporary guards, caution tape/signs in combination with supervision).
- c) Equipment and functions which are currently not yet installed, commissioned or are out of operation shall be locked and tagged. In addition, it shall be documented by the manufacturer and handed over to the user.
It is the responsibility of the user to inform and instruct the operating personnel accordingly. Organisational measures (e. g., access procedures, manual safe stop) shall be specified by the user.
- d) Production conditions and materials are limited to the sufficiently tested ones. It shall be documented by the manufacturer and handed over to the user.

A private-law arrangement regarding release of limited production is advisable!

Conclusion

The MD addresses specific requirements regarding "commissioning" (as a time period) and "putting into service" (CE-marking, as a point in time) only to the manufacturer.

These requirements regarding "commissioning" are not state-of-the-art for metallurgical machinery/plant and need clarification.

This Position Paper points out, that

- **the commissioning phase occurs before “putting into service”, i. e., without EC Declaration of Conformity (CE marking).**
- **the production start-up requires the involvement of both, manufacturer and user.**
- **the state-of-the-art requires a release of limited production prior to CE-marking.**
- **after prior consultation, a limited production by the user is possible, but only for production conditions and materials which are sufficiently tested.**
- **during production start-up the overall safety of the whole machinery/plant is not yet guaranteed, but**
 - **basic safety functions shall be ready to function and validated, and**
 - **wherever access to danger zones is not prevented by guards, those zones shall be clearly marked and, if possible, safeguarded by temporary guards, and**
 - **the manufacturer shall inform the user which equipment and/or safety functions are out of order.**

Annex A

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] ¹⁾
 - Continuous Casting Machines EN 14753 [2008]
 - Steel Converter EN 16774 [2016]

- **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* *Draft proposal under preparation*

- **WG 4 "Strip Processing Lines"**
 - Strip Processing Lines EN 15061 [2007+A1:2008]

- **WG 5 "Extruding / Forging Presses"**
 - Extrusion Presses EN 14656 [2006+A1:2010]
 - Hydraulically Powered Hot Forging Presses EN 14673 [2006+A1:2010]

The above mentioned EN-Standards are published in the EU Official Journal. The application of these C-type standards leads to the presumption of conformity with the MD.

It is recommended to consider these standards in case of modernisation, if applicable.

¹⁾ EN 14681 is going to be replaced by ISO 13578 and will be published in Europe as "EN ISO 13578"