BM TRADA

Technical information

CE marking for structural steel to BS EN 1090-1

Execution of steel structures and aluminium structures

01 Introduction

As of 1st July 2014 under the Construction Products Regulation (CPR), CE marking for structural steel to BS EN 1090-1 will become mandatory for products sold on the EU construction market. Therefore anyone designing and / or manufacturing steel frame or steel components for the European market, including the UK, must comply. Failure to do so can have serious consequences to you and your business.

CE Marking Logo

02 What standard(s) do I need to CE mark against?

To achieve CE certification, manufacturers, contractors and fabricators will need to demonstrate compliance to BS EN 1090-1: 2009 + A1:2011 *Execution of steel structures and aluminium structures part 1 – Requirements for conformity assessment of structural components.*

The standard explains that all structural steel is safety critical and therefore all manufacturing will need to be carried out in a controlled manner. This means that the manufacturer / distributor must document and implement a Factory Production Control (FPC) system and have the system certified by a Notified Body. The manufacturer / distributor will also need to produce a Declaration of Performance (DoP). This is a legal document that must be produced by the manufacturer / distributor and supplied with the product(s) when placing it on the market.

BS EN 1090-2: 2008 + A1:2011 *Execution of steel structures and aluminium structures part 2 – Technical requirements for the execution of steel structures*, outlines what is required to ensure steel structures and components meet adequate levels of mechanical resistance, stability, serviceability and durability. The standard sets out four Execution Classes (EXC's), as given below. These classes are based on the end use of the structure and how critical it would be if it failed.

- EXC1 – e.g. Agricultural buildings
- EXC2 – e.g. Residential or Commercial structures
- EXC3 – e.g. Bridges
- EXC4 – e.g. Special structures (long-span bridges, stadiums etc)

For EXC2, 3 and 4 all welding activities must be controlled by a Responsible Welding Coordinator (RWC).

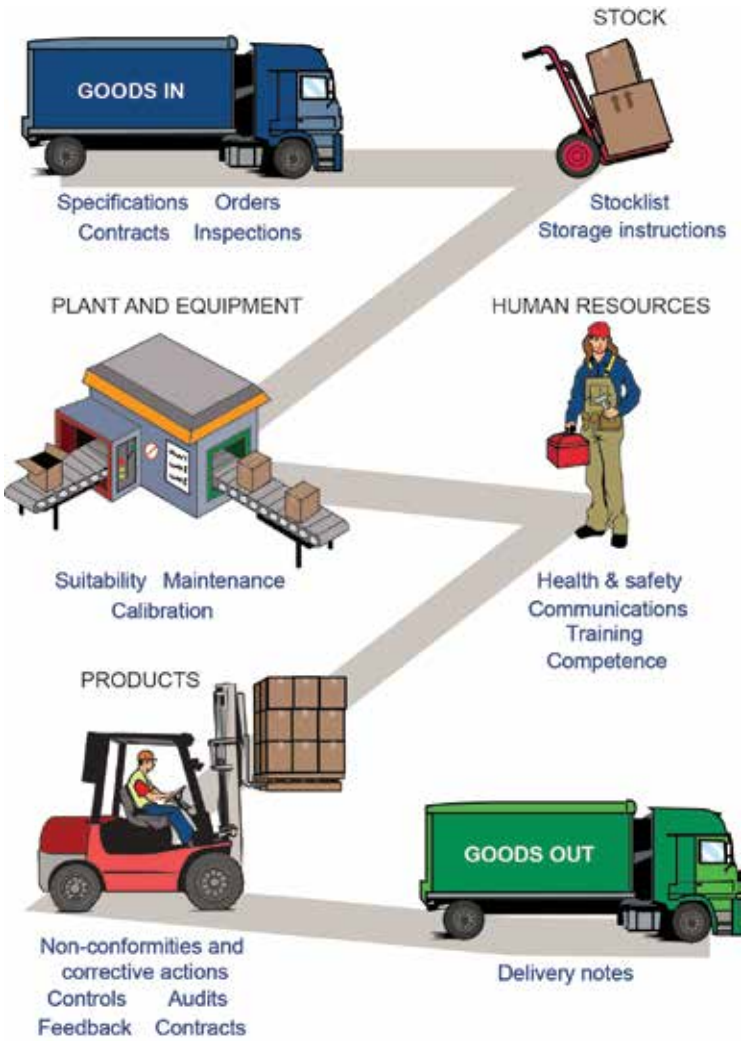


Figure 1: FPC documents describing the quality of production in the factory, from goods inwards to good outwards

03 What is a Factory Production Control (FPC) system?

Factory Production Control (FPC) is defined as a permanent and internal control of production exercised by a manufacturer / distributor. All the elements, requirements and provisions adopted by the manufacturer / distributor must be documented in a systematic manner in the form of written policies and procedures.

The FPC documentation ensures a common understanding of quality assurance and enables the achievement of the required product characteristic and the effective operation of the production control system.

The FPC system shall define (but not be limited to):

a. **Organisation** - responsibilities and management of the FPC system;

b. **Control procedures** - manuals on procedures, documents and data control;

c. **Management of production** - requiredset of procedures which constitute the FPC (identification and control of materials, control of storage and stock conditions, traceability of product throughout the process);

d. **Inspection and testing –** qualified personnel, equipment, procedures and frequencies;

e. **Records** - what needs to be recorded and kept;

f. **Control of non-conforming product**: actions to be taken on non-conforming products and corrective actions to avoid replication;

g. **Transport and packaging**

h. **Training of personnel:** procedures to ensure appropriate training of personnel involved in the FPC.

An ISO 9001 System is deemed to satisfy the requirement for FPC, providing that it has incorporated the specific requirements of BS EN 1090-1. However, having a certified ISO 9001 system is not a requirement for CE marking.

04 Product Technical File

The manufacturer / distributor has to establish / draw up the product technical documentation required by the Regulation for the assessment of the product's conformity to the relevant requirements. Together with the EC Declaration of Performance, the technical documentation must be made available when requested by the appropriate authorities.

05 What is a Declaration of Performance (DoP) and how do I produce one?

The Declaration of Performance (DoP) is a legal declaration made by the manufacturer / distributor that the product was manufactured in accordance with, and conforms to, the requirements of the harmonised standard (BS EN 1090-1). The manufacturer, his authorised Representative or Distributor must produce a DoP before placing the product on the market.

An example of the content of a DoP is given in Annex III of the CPR (Regulation No. 305/2011).

Declaration of performance		
Number		
1. Product type		
2. Type, batch, serial number		
3. Intended use		
4. Name and address of Manufacturer		
5. Name & address of Authorised Rep. (if applicable)		
6. AVCP system		
7. Number of hEN/ETAss, including year of publication		
8. Name and number of Notified Body		
9. Declared performance:		
Essential Characteristic	**Performance claimed**	**Harmonised Technical Specification**
10. Name of person making declaration		
11. Designation		
12. Signature		
13. Place of issue		
14. Date		

Example of a Declaration of Performance (DoP)

06 Design Protocol

If the manufacturer / distributor is responsible for, or takes any responsibility for design, then they should have a design protocol in place as part of their documented procedures. This design protocol should outline all the steps undertaken in relation to design from the time an enquiry is received to the time fabrication drawings are produced.

Steel structures should be designed in accordance with Eurocodes. The design protocol should include, but not be limited to, handling of design assumptions, design methods, design calculations including any use of computer programs, and results of the calculations with demonstration of procedures for corrective actions to be taken in case of non-conformity.

07 Responsible Welding Coordinator (RWC)

Manufacturers / distributors of products falling within EXC2, 3 and 4 must have, or have access to, a Responsible Welding Co-ordinator (RWC) and all welding functions must be supervised / controlled by the RWC.

If the RWC fulfils the requirements of the following, then the competency requirements for an RWC is deemed to be met:

- International Welding Engineer (IWE)
- International Welding Technologist (IWT)
- International Welding Specialist (IWS)

BM TRADA's Position on RWC:

The manufacturer will need to demonstrate competence of their RWC by means of one of the following:

For EXC3 and EXC4:

- IWT or IWE Qualification

For EXC2

- IWS Qualification
- Relevant Diploma issued / recognised by International Institute of Welding (IIW)
- Training - Certificate that specifies that the training covered the requirements of EN 1090-2; EN 14731 & EN ISO 3834. The certificate must be issued by a nationally recognised or accredited body, or one that has been reviewed and deemed acceptable by BM TRADA.

08 The Auditing and Surveillance process

As part of the certification process, an Initial Audit of the manufacturing facility must be carried out by a Notified Body (NB). The purpose of the audit is to assess the documented policies and procedures against the requirements of the standard(s) or technical specification(s).

Once certification has been achieved surveillance audits will be carried out by the NB to ensure that the Factory Production Control System is operating satisfactorily. These surveillance audits are based on the intervals given in Table B.3 of EN 1090-1, reproduced below.

Execution Class	Intervals between inspections of the manufacturers FPC after the ITT (Years)
EXC1 & EXC2	1 – 2 – 3 – 3
EXC3 & EXC4	1 – 1 – 2 – 3 – 3

09 How / where do I apply the CE mark?

The manufacturer / distributor is responsible for creating a CE mark and applying it to their product. It must be affixed visibly, legibly and indelibly on one or more of the following locations: the product, attached label, packaging, on the accompanying commercial documentation (such as delivery note) or the manufacturers / distributors published technical specifications.

The format of the CE mark, as well as the information that needs to be included to ensure traceability, is detailed in the Annex ZA of the Technical Specification (BS EN 1090-1).

CE A

01234 B

AnyCo Ltd, PO Box 21, B-1050 C

08 D

01234-CPD-00234 E

EN 1090-1 F

Welded steel beam – M 346 G

Tolerances on geometrical data: EN 1090-2. H

Weldability: Steel S235J0 according to EN 10025-2.

Fracture toughness: 27 J at 0°C.

Reaction to fire: Material classified: Class A1.

Release of cadmium: NPD.

Emission of radioactivity: NPD.

Durability: Surface preparation according to EN 1090-2, preparation grade P3. Surface painted according to EN ISO 12944-5, S.1.09.

Structural characteristics:
Design: example method 3b.
Manufacturing: According to component specification CS-034/2006, and EN 1090-2, execution class EXC2.

Example of a CE mark label

10 The CE marking Process

The six steps to CE marking are:

1. Identify the harmonised standards and directives that apply to your product, BS EN 1090-1 and the CPR (Regulation Nº 305/2011)
2. Identify / verify the product specific requirements
3. Identify whether you require a Notified Body (NB) to carry out a Conformity Assessment. BM TRADA are a Notified Body for BS EN 1090-1
4. Test your product to check conformity
5. Draw up the Product Technical File
6. Affix the CE mark and prepare the Declaration of Performance (DoP).

11 BM TRADA

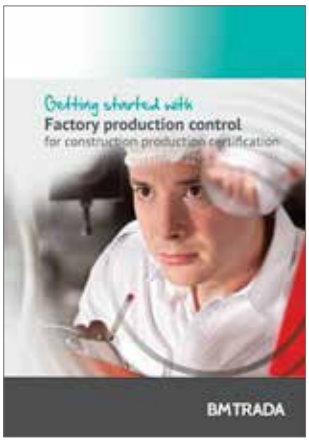
BM TRADA provides CE marking certificatiion for stuctural steel to BS EN 1090-1. We are a Notified Body and can offer testing and certification for CE marking products under the Construction Products Regulation (CPR).

BM TRADA also provide management certification for quality (ISO 9001), Health and Safety (OHAS 18001) and Envoronmental (ISO 14001).

Figure 2: The six steps to CE marking

A. CE conformity marking, consisting of the 'CE' symbol given in Directive 93/68/EEC
B. Identification number of the notified body
C. Name or identifying mark and registered address of the producer
D. Last two digits of the year in which the marking was first affixed
E. Certificate number issued by the NB
F. No. of European standard
G. Description of product
H. Information on regulated characteristics

12 Related publications



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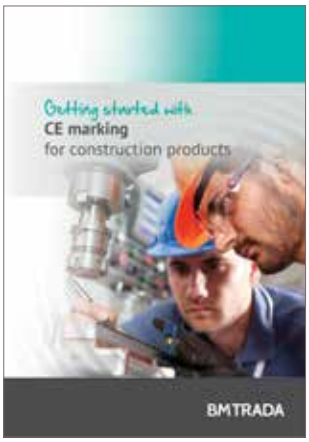

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