

HOW TO CHECK AN INSPECTION CERTIFICATE 3.1 OF STEEL PRODUCTS

In this note, guidance on how to check information on the Inspection certificate 3.1 of steel products is provided.

1. Types of Inspection Documents in compliance with European Codes

The standard EN 10204:2004 describes various types of certification; the more common types are listed and described in Table 1.

Table 1 – Summary of EN 10204 Inspection documents

Type of certification		Content	Validated by
Non-specified inspection document⁽¹⁾	Type 2.1 Declaration	<ul style="list-style-type: none"> • Statement of compliance with the order 	The manufacturer of the steel product
	Type 2.2 Test report	<ul style="list-style-type: none"> • Statement of compliance with the order • Tests results of non-specifics inspection for the type of steel received⁽²⁾ 	
Specified inspection documents	Type 3.1 Inspection certificate	<ul style="list-style-type: none"> • Statement of compliance with the order • Material values from the batch supplied tests 	The manufacturer's authorized inspection representative, independent of the manufacturing department (Usually the Test house Manager)
	Type 3.2 Inspection certificate		The manufacturer's authorized inspection representative, independent of the manufacturing department, countersigned and endorsed by an independent external inspector who has validated that the test results are correct (either the purchaser's authorized inspection representative or the inspector designated by the official regulations)

(1) Indicative information; not directly obtained from the batch of material supplied;

(2) The tests results can be from previous trials or batches produced some time in the past but should be from the same processing route

A manufacturer's Inspection certificate 3.1 or 3.2 contains the Chemical and Mechanical properties of the steel. This certificate provides, to the customer, assurance that steel products are in accordance with the order.

2. Steps to check an Inspection Certificate 3.1

An example of the type 3.1 Inspection Certificate (IC), issued by ArcelorMittal Belval & Differdange, is presented in Appendix. Important steps to check the tampering of the IC and to ensure the steel conforms to that specified are briefly described below; indications are provided on the certificate example.

1 - Evidence of tampering

The certificate should be looked in detail to identify eventual changes of font, different height lettering and misaligned text, or anything that looks out of place. Generally steel manufacturers can be contacted to validate the original information on a certificate if there is any doubt to the authenticity.

The stamp of the manufacturer's authorized inspection representative needs to appear at the end of the certificate, with the name and signature (unless it is stated that the inspection certificate has been prepared by a computer system and is valid without signature).

2 - Type of Inspection Certificate

The inspection certificate should include the Type and the standard, e.g. EN 10204:2004 / 3.1.

3 - Manufacturers Name & Address

The manufacturer's name and address should always be given on the inspection document. The IC example also provides the name of the place where the steel was manufactured (in section A01 of IC).

4 - CE marking

Most Inspection certificates include the CE Marking logo together with the four digit number of the Notified Body that certified the steel manufacturer's FPC system. The reference of the certificate of Factory Production Control and quality assurance logo may also be given.

5 - Product description

The IC should include a description of the product which should also contain a reference to the manufacturing standard and the steel grade and sub-grade.

6 - Tensile Test Results

The inspection certificate should include the tensile test results for the steel, performed according to the standard EN 10002. At least values for the three main properties should be given: i) Yield Stress, R_e (N/mm²), ii) Tensile Strength, R_m (N/mm²), and iii) Elongation (%).

7 - Charpy Impact Test Results

For sub-grades other than JR, unless specified, the inspection certificate should include the results of the Charpy Impact tests, performed following the standard EN 10045. Five data should be provided: i) Test type, ii) Width (mm), iii) Temperature (0°C for J0 material; -20°C for J2 material), iv) at least three test values, and v) the average of the three test values.

8 - Identification of the product, number of items and product dimensions

The number of items, the identification of the product and the dimensions of each item should be recorded on the IC. **Number of items and product dimensions should be checked against the number of items ordered and the dimensions of each item.** The identification of the product is usually given by the heat number, which is the identification number of the batch of steel from which the steel coil was made; this number is needed for traceability.

9 - Carbon equivalent value (CEV)

The Carbon Equivalent Value (CEV) is a measure of the weldability of the steel. The limits given in EN 10025 have to be respected.

10 - Chemistry

For steel that is made to EN 10025:2004 the manufacturer is required to list at least the eight chemicals that are given in the standard (e.g. C, Si, Mn, P, S, Al, N and Cu), plus any intentional additional elements (i.e. B, Cr). For a non-alloy steel (i.e. for those steels specified to EN 10025) the quantities must comply with the limits given in EN 10020 (see technical note n°1-version 2, July 2015).

11 - Intended Uses

It is only allowed to use the product for its intended purpose, defined in the certificate.

12 - Additional Information about the product


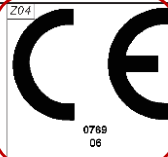
Additional references to European Standards or Declarations may be provided for:

- Durability
- Regulated substance
- Weldability
- Type of furnace for Steelmaking (EAF - *Electrical Arc Furnace*, or BOF - *Blast Oxygen Furnace*).
- Dimension and Shape tolerances
- Environmental Product Declaration (EDP)
- Declaration of performance (DoP)

Cécile Haremza, ECCS Technical secretary
03/12/2015

APPENDIX: INSPECTION CERTIFICATE 3.1 – EXAMPLE

3- Manufacturer's Name and Address

<p>A10 Sales Agent: ArcelorMittal Commercial Sections S.A. 66, rue de Luxembourg 4221 ESCH-SUR-ALZETTE</p> <p>A01 Plant: ArcelorMittal Belval & Differdange Site de Belval L-4008 Esch/Alzette</p>	<div style="border: 1px solid black; padding: 5px; margin-bottom: 5px;"> ArcelorMittal Belval & Differdange Service Gestion Qualité 66, rue de Luxembourg L-4009 Esch/Alzette </div> <p style="text-align: right; margin-right: 20px;"></p> <p style="text-align: center; font-weight: bold; font-size: 1.2em;">Certificate Nr X 3058507</p> <p style="font-size: 0.8em;">Delivery note number 3058507 from 3 July 2015</p>																																																																									
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<p>5- Product description →</p> <p>2- Type of Inspection Document →</p>	<p style="border: 1px solid black; padding: 2px;">S355JR+ M ACCORDING TO EN 10025-2/2004</p> <p style="border: 1px solid black; padding: 2px;">Inspection certificate according to EN 10204:2004 / 3.1</p>	<p>8- Identification of the product →</p> <p>8- Nb. of pieces →</p>																																																																								
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<p>11- Intended Uses →</p> <p>12- Additional Information →</p>	<p>Intended uses : Building constructions or civil engineering</p> <p>Durability : No performance determined</p> <p>Regulated substance : No performance determined</p> <p>Weldability : according to EN 1011-2</p> <p>EAF-Steel</p> <p>Dimension and Shape tolerances :</p> <p>I- Profiles : EURONORM 19-57 and EN10034</p> <p>H-Profiles : EURONORM 53-62 and EN10034</p> <p>Angles I : EN10056 Part 1 and 2</p> <p>U-Profiles : DIN 1026 and EN 10279</p> <p>UB-und UC-Profiles und UBP-support piles : BS4 Part 1 and EN10034</p> <p>Environmental product declaration:EPD-BFS-2010111-E</p> <p>http://sections.arcelormittal.com/download-center/declaration-o f-performance-cpr-30511.html</p>																																																																									
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Code of the product type: 1.0045 / DOP: AMEB-2/07-CPR-13-1