



## European Technical Approval ETA-13/0257

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung  
*Trade name*

Kaltgeformte Bauteile aus der Stahlsorte S390GD  
*Cold formed steel products made of steel grade S390GD*

Zulassungsinhaber  
*Holder of approval*

ArcelorMittal  
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LUXEMBURG

Zulassungsgegenstand  
und Verwendungszweck  
*Generic type and use  
of construction product*

Kontinuierlich schmelztauchveredelte Flacherzeugnisse aus der  
Stahlsorte S390GD  
*Continuously hot-dip coated steel flat products made of steel grade  
S390GD*

Geltungsdauer:  
*Validity:* vom  
*from*  
bis  
*to*

28 May 2013  
28 May 2018

Herstellwerk  
*Manufacturing plant*

ArcelorMittal Gent, Belgium  
ArcelorMittal Liège, Belgium  
ArcelorMittal Atlantique, France  
ArcelorMittal Bremen, Germany  
ArcelorMittal Asturias, Spain

Diese Zulassung umfasst  
*This Approval contains*

7 Seiten  
*7 pages*

## I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European technical approval is issued by Deutsches Institut für Bautechnik in accordance with:
  - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products<sup>1</sup>, modified by Council Directive 93/68/EEC<sup>2</sup> and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council<sup>3</sup>;
  - *Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998<sup>4</sup>, as amended by Article 2 of the law of 8 November 2011<sup>5</sup>;*
  - Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC<sup>6</sup>.
- 2 Deutsches Institut für Bautechnik is authorized to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.
- 3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.
- 4 This European technical approval may be withdrawn by Deutsches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.
- 5 Reproduction of this European technical approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of Deutsches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.
- 6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

<sup>1</sup> Official Journal of the European Communities L 40, 11 February 1989, p. 12  
<sup>2</sup> Official Journal of the European Communities L 220, 30 August 1993, p. 1  
<sup>3</sup> Official Journal of the European Union L 284, 31 October 2003, p. 25  
<sup>4</sup> *Bundesgesetzblatt Teil I* 1998, p. 812  
<sup>5</sup> *Bundesgesetzblatt Teil I* 2011, p. 2178  
<sup>6</sup> Official Journal of the European Communities L 17, 20 January 1994, p. 34

## II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

### 1 Definition of product and intended use

#### 1.1 Definition of the construction product

The construction products are continuously hot-dip coated steel flat products with a core thickness  $t_{\text{cor}}$  of  $1,0 \text{ mm} \leq t_{\text{cor}} \leq 6,0 \text{ mm}$  and a metallic zinc layer (+Z) according to EN 10346:2009 with a total coating mass of up to  $275 \text{ g/m}^2$  or up to  $450 \text{ g/m}^2$  for core thicknesses  $t_{\text{cor}} \leq 4,0 \text{ mm}$ . The chemical composition of the steel flat products is according to EN 10346:2009, Table 2. The steel flat products belong to strength class S390 with the mechanical properties according to Table 1 of this European Technical Approval. The products will be called in the following "products made of steel grade S390GD".

The products made of steel grade S390GD are suitable for welding if required.

For advanced corrosion resistance and / or for optical reasons the products may have an additional organic layer. A possible advanced corrosion resistance due to this additional organic layer is not subject of this European Technical Approval.

**Table 1 Mechanical properties in longitudinal direction**

Designation			Mechanical properties		
Steel grade		Symbols for the types of available coatings	Proof strength $R_{p0,2}$ MPa min.	Tensile strength $R_m$ MPa min.	Elongation $A_{80}$ % min.
Steel name	Steel number				
S390GD	---	+Z	390	460	16
<p><sup>a</sup> If the yield point is pronounced, the values apply to the upper yield point <math>R_{eH}</math>.</p> <p><sup>b</sup> A range of 140 MPa can be expected for tensile strength.</p>					

#### 1.2 Intended use of the construction product

The products made of steel grade S390GD are intended to be used for cold formed structural parts as profiled sheeting or sandwich panels for cladding and roofing but for other structural applications as well. The products are intended to be used for internal and external applications. The range of application is the same as for steel flat products according to EN 10346:2009, Table 2.

Apart from that the intended use includes applications where specified surfaces (e.g. coloured organic coatings) are required.

The provisions made in this European technical approval are based on an assumed working life of the products made of steel grade S390GD of 25 years, provided that the conditions laid down in section 5.1 for the maintenance/repair are met. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

## 2 Characteristics of the products and methods of verification

The assessment of the fitness of the products made of steel grade S390GD for the intended use in relation to the requirements for mechanical resistance and stability, safety in case of fire, Hygiene, health and environment and safety in use in the sense of the Essential Requirements No. 1, No. 2, No. 3 and No. 4 has been made in accordance with section 3.2 of the Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC<sup>6</sup>.

Concerning Essential Requirement No. 2 (Safety in case of fire) the following applies:

The assessment of the resistance to fire performance is only relevant to the assembled structure which is not part of the European technical approval.

The products made of steel grade S390GD are considered to satisfy the requirements of performance class A 1 of the characteristic reaction to fire, in accordance with the provisions of the EC Decision 96/603/EC (as amended) without the need for testing on the basis of its listing in that decision.

Note for products with additional organic layer: A European reference fire scenario for facades has not been laid down. In some Member States, the classification of products made of steel grade S390GD according to EN 13501-1 might not be sufficient for the use in facades. An additional assessment of products made of steel grade S390GD according to national provisions (e. g. on the basis of large scale test) might be necessary to comply with Member State regulations, until the existing European classification system has been completed.

Concerning Essential Requirement No. 3 (Hygiene, health and environment) the following applies:

The products made of steel grade S390GD does not contain dangerous substances or radiation.

Note: In addition to the specific clauses relating to dangerous substances contained in this European technical approval, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive, these requirements need also to be complied with, when and where they apply.

Concerning Essential Requirements No. 1 (Mechanical resistance and stability) and Essential Requirements No. 4 (Safety in use) the following applies:

The material properties given in Table 1 of this European Technical Approval and in Table 2 of EN 10346:2009 were determined by tests or confirmed by inspection certificate 3.1 according to EN 10204.

### 3 Evaluation and attestation of conformity and CE marking

#### 3.1 System of attestation of conformity

According to the Decision 99/92/EC of the European Commission<sup>7</sup> system 2+ of the attestation of conformity applies.

System 2+: Declaration of conformity of the product by the manufacturer on the basis of:

- (a) Tasks for the manufacturer:
  - (1) initial type-testing of the product;
  - (2) factory production control;
  - (3) testing of samples taken at the factory in accordance with a prescribed test plan.
- (b) Tasks for the approved body:
  - (4) certification of factory production control on the basis of:
    - initial inspection of factory and of factory production control;
    - continuous surveillance, assessment and approval of factory production control.

Note: Approved bodies are also referred to as "notified bodies".

#### 3.2 Responsibilities

##### 3.2.1 Tasks for the manufacturer

###### 3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the product is in conformity with this European technical approval.

The factory production control shall be in accordance with the control plan which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with Deutsches Institut für Bautechnik.<sup>8</sup>

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

###### 3.2.1.2 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 in the field of hot-dip coated steel flat products in order to undertake the actions laid down in section 3.2.2. For this purpose, the control plan referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of this European technical approval.

<sup>7</sup> Official Journal of the European Communities L 80 of 18.03.1998

<sup>8</sup> The control plan is a confidential part of the European technical approval and only handed over to the approved bodies involved in the procedure of attestation of conformity. See section 3.2.2.

### 3.2.2 Tasks for the approved bodies

The approved body shall perform the

- initial inspection of factory and of factory production control,
- continuous surveillance, assessment and approval of factory production control in accordance with the provisions laid down in the control plan.

The approved body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in written reports.

The approved certification body involved by the manufacturer shall issue an EC certificate of conformity of the factory production control stating the conformity with the provisions of this European technical approval.

In cases where the provisions of the European technical approval and its control plan are no longer fulfilled the certification body shall withdraw the certificate of conformity and inform Deutsches Institut für Bautechnik without delay.

### 3.3 CE marking

The CE marking shall be affixed on the accompanying commercial documents. The letters "CE" shall be followed by the identification number of the approved certification body, where relevant, and be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate for the factory production control,
- the number of the European technical approval,
- the name of the product,
- the information on regulated characteristics of the product (nominal values).

## 4 Assumptions under which the fitness of the products for the intended use was favourably assessed

### 4.1 Manufacturing

The products made of steel grade S390GD are manufactured in accordance with the provisions of the European technical approval using the manufacturing process as laid down in the technical documentation.

The European technical approval is issued for the product on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to Deutsches Institut für Bautechnik before the changes are introduced. Deutsches Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

### 4.2 Design

#### 4.2.1 General

Unless not otherwise specified in this European technical approval the rules for steel grade S350GD according to Table 3.1b of EN 1993-1-3:2006 + AC:2009 are used for the design.

#### 4.2.2 Specific

Deviating from EN 1993-1-3:2006 + AC:2009 the following values of basic yield strength  $f_{yb}$  and tensile strength  $f_u$  are used for the design:

$$f_{yb} = 3900 \text{ N/mm}^2$$

$$f_u = 460 \text{ N/mm}^2$$

#### 4.3 Fabrication and installation

Unless not otherwise specified in this European technical approval the fabrication and installation is carried out in accordance with EN 1090-2:2008+A1:2011. The specific characteristic of steel grade S390GD is taken into account.

The bending radius for cold forming is  $\geq t_{cor}$  provided that tests have shown that no cracks occurred.

If weldability is required this is demand in the order of the products. Manufactures who weld products made of steel grade S390GD have a welding certificate according to EN 1090-1:2009+A1:2011 for steel grade S390GD.

#### 5 Indications to the manufacturer

It is in the responsibility of the manufacturer to ensure that the information on the specific conditions according to 1, 2, 4.2 and 4.3 (including Annexes referred to) is given to those who are concerned. This information may be given by reproduction of the respective parts of the European technical approval.

##### 5.1 Use, maintenance, repair

The rules of EN 1090-2:2008+A1:2011 apply.

Uwe Bender  
Head of Department

*beglaubigt:*  
Ulbrich