BRITISH STANDARD

BS EN 10238:2009

Automatically blast-cleaned and automatically prefabrication primed structural steel products

ICS 77.140.10

BSI
British Standards

National foreword

This British Standard is the UK implementation of EN 10238:2009. It supersedes BS EN 10238:1997 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee ISE/12, Structural steels.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Automatically blast-cleaned and automatically prefabrication primed structural steel products

Éléments métalliques préfabriqués automatiquement et décapés automatiquement par projection d'abrasif

Automatisch gestrahlte und automatisch fertigungsbeschichtete Erzeugnisse aus Baustählen

This European Standard was approved by CEN on 12 June 2009.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 10238:2009) has been prepared by Technical Committee ECISS/TC 10 “Structural steels - Qualities”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2010, and conflicting national standards shall be withdrawn at the latest by January 2010.

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This document supersedes EN 10238:1996.

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1 Scope

This European Standard specifies requirements for automatically blast-cleaned and automatically prefabrication primed structural steel products.

This European Standard does not cover manual blast cleaning and/or manual spray painting.

NOTE Where the steel is less than 5 mm thick, care should be exercised to ensure it is not deformed by blast cleaning.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10021, *General technical delivery conditions for steel products*

EN 10025-2, *Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels*

EN 10025-3, *Hot rolled products of structural steels - Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels*

EN 10204, *Metallic products – Types of inspection documents*

EN ISO 2808:2007, *Paints and varnishes – Determination of film thickness (ISO 2808:2007)*

EN ISO 8501-1, *Preparation of steel substrates before application of paints and related products – Visual assessment of surface cleanliness – Part 1: Rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings (ISO 8501-1:2007)*

EN ISO 8503-2, *Preparation of steel substrates before application of paints and related products – Surface roughness characteristics of blast-cleaned steel substrates – Part 2: Method for the grading of surface profile of abrasive blast-cleaned steel – Comparator procedure (ISO 8503-2:1998)*

EN ISO 17652-1:2003, *Welding – Test for shop primers in relation to welding and allied processes – Part 1: General requirements (ISO 17652-1:2003)*

EN ISO 17652-2:2003, *Welding – Test for shop primers in relation to welding and allied processes – Part 2: Welding properties of shop primers (ISO 17652-2:2003)*

EN ISO 17652-3:2003, *Welding – Test for shop primers in relation to welding and allied processes – Part 3: Thermal cutting (ISO 17652-3:2003)*

EN ISO 17652-4:2003, *Welding – Test for shop primers in relation to welding and allied processes – Part 4: Emission of fumes and gases (ISO 17652-4:2003)*

3 Definitions

For the purposes of this document, the following definitions apply:

3.1
automatic blast cleaning
use of mechanical plant where the product being blast-cleaned is passed through a machine where turbines are used to project the abrasive onto the steel in a uniform manner

3.2
automatic priming
After automatic blast cleaning, the product is primed by passing through a paint booth where reciprocating paint guns apply a continuous coating to the required thickness.

3.3
prefabrication primer
thin coating which is automatically applied to blast cleaned steel and serves to provide temporary corrosion protection for steel components during their processing, transport and storage

4 Information to be supplied by the purchaser

4.1 Mandatory information

The following information shall be supplied by the purchaser at the time of enquiry and order:

a) designation of the steel;

b) type of prefabrication primer (see 9.1 – table 1);

c) type of inspection document (clause 12).

4.2 Additional optional information

a) Preparation grade if different from Sa 2 ½ (clause 7);

b) surface roughness if specified (clause 8);

c) dry film thickness if different from that given in 9.1;

d) information on manufacturing process (clause 6);

e) flame cutting and weldability characteristics of prefabrication primers (clause 10);

f) special requirements for marking (clause 13);

g) position of test pieces (annex A).

In the event that the purchaser does not indicate his wish to implement any of the additional information, the manufacturer shall supply the blast-cleaned and primed product in accordance with the basic specification.

5 Designation

The products covered by this European Standard shall be designated as follows, in the order given:

a) type of product (plate, beam …);

b) number of this European Standard (EN 10238);

c) preparation grade (see clause 7);

d) if the surface roughness is specified at time of enquiry and order, the surface roughness agreed;

e) type of prefabrication primer (see 9.1);

f) nominal prefabrication dry film thickness if it differs from that specified in this Standard (see 9.1);

g) designation of steel following the appropriate Standard.

EXAMPLE 1 Designation of H heavy section made of steel S275N (or 1.0490) in accordance with EN 10025-3, with preparation grade Sa 2 ½ coated with epoxy-zinc (EPZ).

H heavy section EN 10238-Sa 2 ½ –EPZ – EN 10025-3 – S275N;

or

H heavy section EN 10238-Sa 2 ½ –EPZ – EN 10025-3 – 1.0490.

EXAMPLE 2 Designation of a nominal dry film thickness different from that specified in this standard and agreed at the time of the enquiry and order and with a roughness also agreed at the time of order.

Sheet made of steel S275JR (or 1.0044) in accordance with EN 10025-2 with preparation grade Sa 2 ½ with roughness F, coated on both sides with polyvinyl butyral-iron oxide (PVBF), with nominal thickness 15 μm.

Sheet EN 10238-Sa 2 ½-F-PVBF15 – EN 10025-2 – S275JR;

or

Sheet EN 10238-Sa 2 ½-F-PVBF15 – EN 10025-2 – 1.0044.

6 Manufacture

The surface treatment process and application of prefabrication primer shall be at the manufacturer's discretion.

If specified at the time of the enquiry and order, this shall be provided to the purchaser.

At the end of production line, repairs to any damaged areas of the primer shall be undertaken to ensure they meet the requirements of this European Standard.

7 Preparation grade

Unless otherwise agreed at the time of enquiry and order, the preparation grade, as specified in accordance with EN ISO 8501-1, shall be Sa 2 ½ minimum.

Appearance variations resulting from:

a) the steel grade;

b) surface condition of the steel,

c) thickness of the steel,

d) consequences of the heat treatment,

e) marks from the fabrication of the steel

shall be deemed acceptable provided they do not affect the preparation grade.

8 Surface roughness

At the time of enquiry and order, a surface roughness class may be specified, in which case it shall be given in the product designation using the symbols F for fine, M for medium and C for coarse.

The measurement method to be used shall be in accordance with EN ISO 8503-2.

9 Prefabrication primers

9.1 Types of prefabrication primers

Table 1 lists the most commonly used groups of primers.

The most usual nominal thickness specified is 20 μm ± 5 μm.

In case of sections, greater dry film thickness in single regions is permitted.

Table 1 — Prefabrication primers

Basic Characteristics		Symbol
Binder	Pigmentation	
Epoxy (EP)	Iron oxide (F)	EPF
Polyvinyl butyral (PVC)	Iron oxide (F)	PVBF
Alkyd (AK)	Iron oxide (F)	AKF
Acrylic (AY)	Iron oxide (F)	AYF
Epoxy (EP)	Zinc dust (Z)	EPZ
Ethyl – Silicate (ESI)	Zinc dust (Z)	ESIZ

Other nominal dry film thickness ranges and/or other types of prefabrication primer shall be applied if agreed at the time of enquiry and order.

9.2 Measurement of primer thickness

The thickness of the dry film shall be measured according to EN ISO 2808:2007 – method 3 (dial gauge method).

The test piece for measuring the dry film thickness shall be perfectly smooth. Glass plates or thin steel sheets are the most commonly used type of test pieces.

The test pieces shall be attached to the products at the end of the blast cleaning process and shall be primed at the same time as the product.

Annex A (normative) specifies the position(s) of test pieces for measuring the primer thickness for different products.

Following the removal of the thickness test pieces, the unpainted area shall be primed with the same primer as used for the initial coating.

The test pieces for the thickness control of the dry primer film shall be stored by the manufacturer for at least one year.

10 Flame cutting and weldability

If required at the time of enquiry and order, the flame cutting and weldability characteristics of prefabrication primers shall be measured according to one of the procedures specified in Annex B. It is the responsibility of the purchaser to obtain, from the manufacturer, the results of these tests.

11 Handling and storage

11.1 Handling

The following precautions shall be taken when handling primed products:

a) avoid excessive rubbing of lifting appliances against the products;

b) avoid friction of products against each other;

c) avoid impact to the products;

d) avoid dragging products over any surfaces.

11.2 Storage

It is recommended that blast-cleaned and primed products be stored indoors as it allows optimum conservation.

The following elementary precautions shall be taken by the manufacturer when storing the products:

a) isolate products from ground moisture by appropriate means (e.g. gravel and beams etc.);

b) store the products on a slightly inclined slope to avoid water stagnation;

c) keep primed and untreated products separate;

d) prevent personnel from walking on the treated products.

NOTE The purchaser should take the same precautions as the manufacturer.

12 Inspection and testing

The products can be supplied with inspection and testing with respect to their compliance with the requirements of this European Standard.

If inspection is required, the purchaser shall specify at the time of enquiry and order:

a) the type of inspection and testing (specific or non specific) see EN 10021);

b) the type of inspection document (see EN 10204).

13 Marking

In addition to the initial marking of the steel, each product or bundle shall be identified by a label or marked by an easily removed non-corrosive ink with at least the following information:

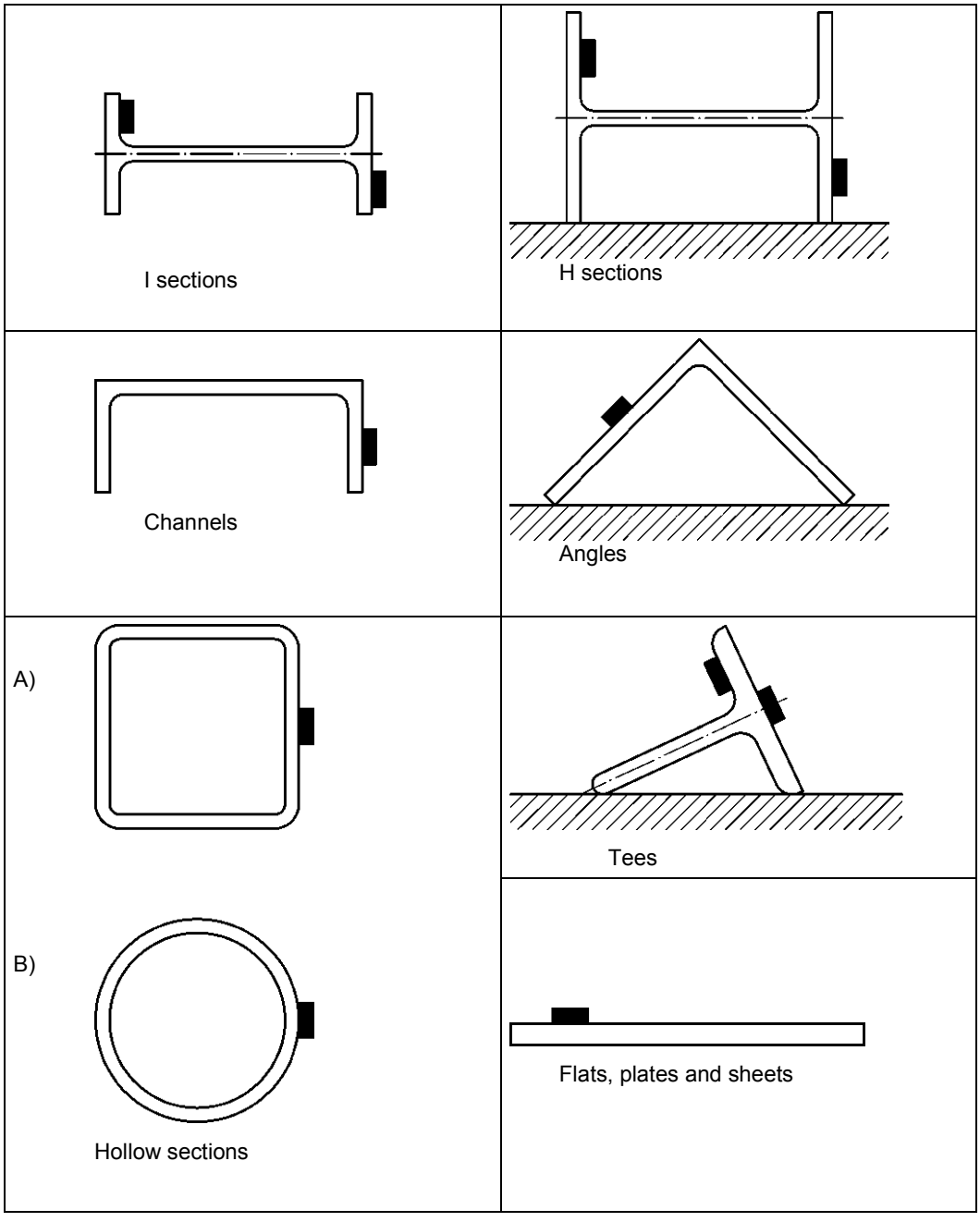
a) name or mark of the manufacturer of the blast cleaned and primed products;

b) symbol or workshop primer and its thickness;

c) date of manufacture.

Annex A
(normative)

Positions of test pieces for measuring the primer thickness[1)]



1) Other positions of the test pieces can be agreed at the time of enquiry and order.

Annex B
(normative)

Flame cutting - Welding

The toxicity of fumes from flame cutting or welding shall be evaluated in accordance with the regulation in force and shall fall within the limits set in national regulations.

Various documents define methods for characterizing workshop primers to the flame cutting and welding processes. The documents are:

EN ISO 17652-1:2003, *Welding – Test for shop primers in relation to welding and allied processes – Part 1: General requirements (ISO 17652-1:2003)*

EN ISO 17652-2:2003, *Welding – Test for shop primers in relation to welding and allied processes – Part 2: Welding properties of shop primers (ISO 17652-2:2003)*

EN ISO 17652-3:2003, *Welding – Test for shop primers in relation to welding and allied processes – Part 3: Thermal cutting (ISO 17652-3:2003)*

EN ISO 17652-4:2003, *Welding – Test for shop primers in relation to welding and allied processes – Part 4: Emission of fumes and gases (ISO 17652-4:2003)*

DASt 006:1980, *Weld overlaying of production coatings (FB) in structural steel work*

The method used will depend upon current national regulations.

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