

Automatically blast cleaned and automatically primed structural steel products

The European Standard EN 10238 : 1996 has the status of a
British Standard

ICS 77.140.01

Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee ISE/12, Steel wire, upon which the following bodies were represented:

- BEAMA Ltd.
- British Constructional Steelwork Association Ltd.
- British Railways Board
- British Iron and Steel Producers Association
- Department of Transport
- Institution of Structural Engineers
- Lloyd's Register of Shipping
- National Association of Steel Stockholders
- Railway Industry Association of Great Britain
- Society of Motor Manufacturers and Traders Ltd.
- Steel Construction Institute
- Welding Institute

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National foreword

This British Standard has been prepared by Technical Committee ISE/12 and is the English language version of EN 10238 : 1996, *Automatically blast cleaned and automatically primed structural steel products*, published by the European Committee for Standardization (CEN).

Cross-references

Publication referred to	Corresponding British Standard
EN 10021 : 1993	BS EN 10021 : 1993 <i>General technical delivery conditions</i>
EN 10204 : 1991	BS EN 10204 : 1991 <i>Metallic products. Types of inspection documents</i>
ISO 8501-1 : 1988	BS 7079 : Group A <i>Visual assessment of surface cleanliness</i> Part A1 : 1989 <i>Specification for rust grades and preparation grades of uncoated steel substrates and of steel substrates after overall removal of previous coatings</i>
ISO 8503-3 : 1988	BS 7079 : Group C <i>Surface roughness characteristics of blast-cleaned steel substrates</i> Part C2 : 1989 <i>Method for the grading of surface profile of abrasively blast-cleaned steel using a comparator</i>

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 8, an inside back cover and a back cover.

ICS 77.140.10

Descriptors: Iron and steel products, shot blasted painted products, steels, prefabrication primers, designation, characteristics, manufacturing, preparation grade, thickness, welding, storage, marking, information

English version

Automatically blast-cleaned and automatically prefabrication primed structural steel products

Produits en aciers de construction grenillés et
prépeints par traitement automatique

Automatisch gestrahlte und automatisch
fertigungsbeschichtete Erzeugnisse aus Baustählen

This European Standard was approved by CEN on 1996-03-19. CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 10, Structural steels — Qualities, of which the secretariat is held by NNI.

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 March 1997, and conflicting national standards shall be withdrawn at the latest by March 1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

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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

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate place in the text and the publications listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 10021	<i>Iron and steel products — General technical delivery conditions</i>
EN 10025	<i>Hot-rolled products of non alloy structural steels — Technical delivery conditions</i>
EN 10113-2	<i>Hot-rolled products in weldable fine grain structural steels — Delivery conditions for normalized/normalized rolled steels</i>
EN 10204	<i>Metallic products — Types of inspection documents</i>
EN ISO 8503-2	<i>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</i>
ISO 2808	<i>Paints and varnishes — Determination of film thickness</i>
ISO 8501-1	<i>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</i>

3 Definitions

For the purposes of this standard the following definitions apply.

3.1 automatic blast cleaning

The 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

Prefabrication primer is a 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:

- designation of the steel;
- type of prefabrication primer (see 9.1 and table 1);
- type of inspection document (clause 12).

4.2 Additional optional information

- preparation grade if different from Sa 2½ (clause 7);
- surface roughness if specified (clause 8);
- dry film thickness if different from that given in 9.1;
- information on the manufacturing process (clause 6);
- flame cutting and weldability characteristics of prefabrication primers (clause 10);
- special requirements for marking (clause 13).
- position of test pieces (annex A).

In the event that the purchaser does not indicate a 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:

- type of product (plate, beam, etc.);
- number of this European Standard (EN 10238);
- preparation grade (see clause 7);
- if the surface roughness is specified at the time of order, the agreed surface roughness;
- type of prefabrication primer (see 9.1);
- nominal prefabrication dry film thickness if it differs from that specified in this standard (see 9.1);
- designation of the steel following the appropriate standard.

EXAMPLE 1:

Designation of H heavy section made of steel S275N (or 1.0486) in accordance with EN 10113-2, with preparation grade Sa 2½ coated with epoxy-zinc (EPZ).

H heavy section EN 10238-Sa 2½-EPZ – EN 10113-2 – S275N; or

H heavy section EN 10238-SA 2½-EPZ – EN 10113-2 – 1.0486.

EXAMPLE 2:

Designation of a nominal dry film thickness different from that specified in this standard and agreed at the time of 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 with preparation grade Sa 2½ with roughness F, coated on both sides with polyvinyl butyral-iron oxide (PVBFI), with nominal thickness 15 µm:

Sheet EN 10238-Sa 2½-F-PVBFI15 – EN 10025 – S275JR; or

Sheet EN 10238-Sa 2½-F-PVBFI15 – EN 10025 – 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 enquiry and order, this shall be provided to the purchaser.

At the end of the 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 ISO 8501-1, shall be Sa 2½ minimum.

Appearance variations resulting from:

- the steel grade;
- surface condition of the steel;
- thickness of the steel;
- consequences of the heat treatment;
- 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 shall be in accordance with 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 the case of sections, greater dry film thicknesses in single regions are permitted.

Table 1: Prefabrication primers		
Basic characteristic		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 ISO 2808, 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:

- avoid excessive rubbing of lifting appliances against the products;
- avoid friction of products against each other;
- avoid impact to the products;
- 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:

- isolate products from ground moisture by appropriate means (e.g. gravel and beams, etc.);
- store the products on a slightly inclined slope to avoid water stagnation;
- keep primed and untreated products separate;
- 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 conformity to this European Standard.

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

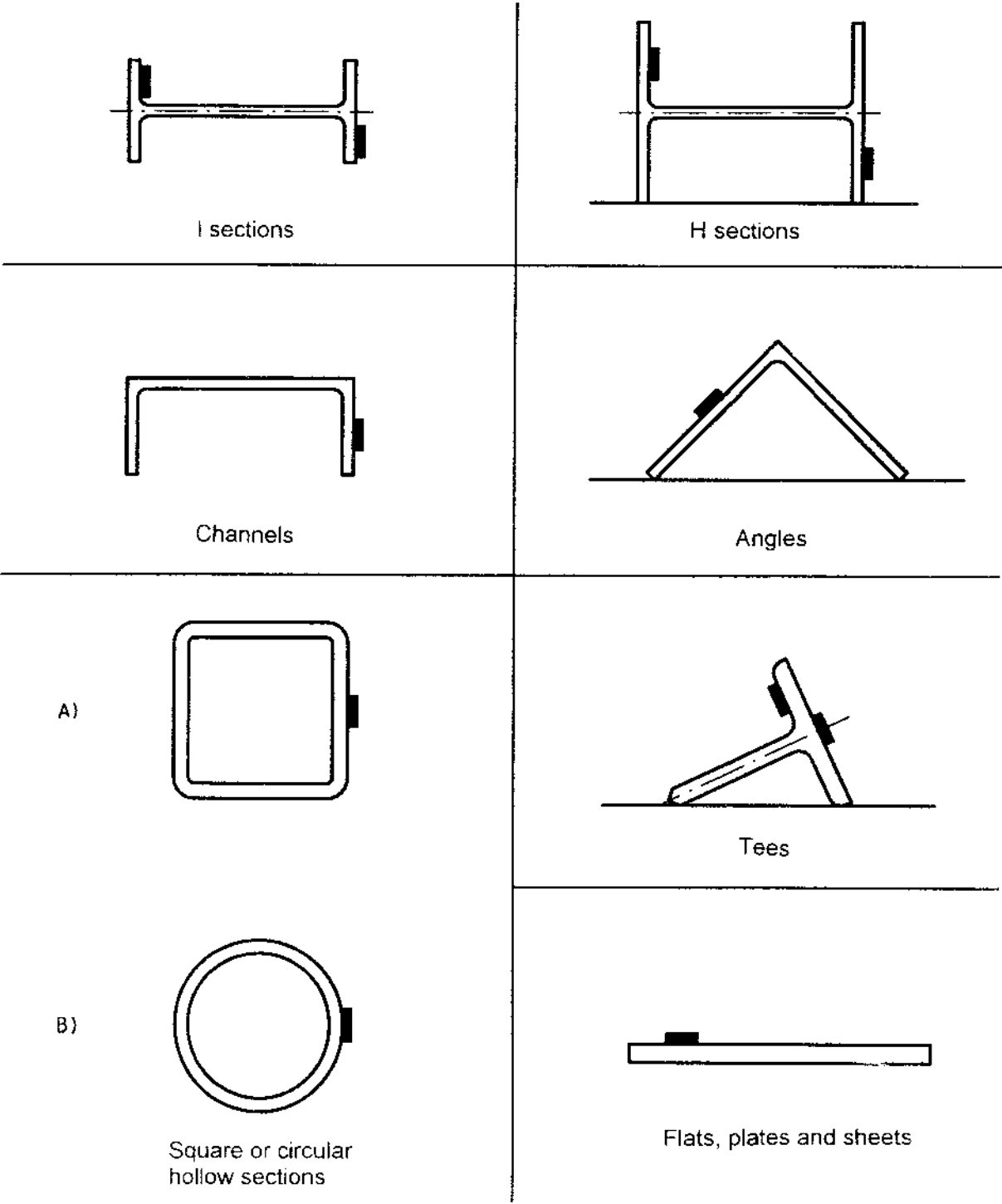
- a) the type of inspection and testing (specific or non specific) (see EN 10021);
- b) the type of inspection document (see EN 10204).

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:

- name or mark of the manufacturer of the blast cleaned and primed products;
- symbol or workshop primer and its thickness;
- date of manufacture.

Annex A (normative)
Positions of test pieces for measuring the primer thickness¹⁾



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:

BS 6084 : 1981	<i>Method of test for comparison of prefabrication primers for porosity rating in arc welding</i>
DAST 006 : 1980	<i>Überschweißen von Fertigungsbeschichtungen (FB) im Stahlbau</i>
DVS 0501 : 1976	<i>Prüfen der Porenneigung beim Überschweißen von Fertigungsbeschichtungen (FB) auf Stahl</i>
NF J 17-115 : 1978	<i>Peintures primaires d'atelier – Influence sur le soudage et l'oxycoupage des tôles</i>

The method used will depend upon current national regulations.

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