BRITISH STANDARD

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10079:2007

Definition of steel products

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ICS 01.040.77; 77.140.01

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National foreword

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A list of organizations represented on ISE/5 can be obtained on request to its secretary.

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Definition of steel products

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Foreword

This document (EN 10079:2007) has been prepared by Technical Committee ECISS/TC 6 “Definition and classification”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by September 2007, and conflicting national standards shall be withdrawn at the latest by September 2007.

This document supersedes EN 10079:1992.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

There are various classification systems existing in Europe but this European Standard only deals with definitions for steel products manufactured by or used in the steel industry or by its customers. For example, Annex B provides guidance on the definition systems used in the former European Coal and Steel Community (ECSC) Treaty as well as the Statistical office of the European Communities and of the Harmonised Commodity Description and Coding System.

The entries that are presented in this European Standard have been ordered systematically, and have been grouped by steel products according to:

— shape and dimensions e.g. flat products, long products, heavy sections;

— appearance and surface condition e.g. coated flat products, bright products.

This European Standard also contains an alphabetical index, which has been included at the end of this document.

1 Scope

This European Standard defines terms for steel products according to:

a) shape and dimensions; and

b) appearance and surface condition.

NOTE 1 Although the products are generally defined independently of their end uses or manufacturing processes, it has sometimes been necessary to make reference to these criteria.

NOTE 2 All dimensions given in this European Standard are nominal.

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 39, *Loose steel tubes for tube and coupler scaffolds — Technical delivery conditions*

EN 10017, *Steel rod for drawing and/or cold rolling — Dimensions and tolerances*

EN 10024, *Hot rolled taper flange I sections — Tolerances on shape and dimensions*

EN 10029, *Hot rolled steel plates 3 mm thick or above — Tolerances on dimensions, shape and mass*

EN 10034, *Structural steel I and H sections — Tolerances on shape and dimensions*

EN 10048, *Hot rolled narrow steel strip — Tolerances on dimensions and shape*

EN 10051:1991 + A1:1997, *Continuously hot-rolled uncoated plate, sheet and strip of non-alloy and alloy steels - Tolerances on dimensions and shape (includes amendment A1:1997)*

EN 10055, *Hot rolled steel equal flange tees with radiused root and toes — Dimensions and tolerances on shape and dimension*

EN 10056-1, *Structural steel equal and unequal leg angles — Part 1: Dimensions*

EN 10058, *Hot rolled flat steel bars for general purposes — Dimensions and tolerances on shape and dimensions*

EN 10059, *Hot rolled square steel bars for general purposes — Dimensions and tolerances on shape and dimensions*

EN 10060, *Hot rolled round steel bars for general purposes — Dimensions and tolerances on shape and dimensions*

EN 10061, *Hot rolled hexagon steel bars for general purposes — Dimensions and tolerances on shape and dimensions*

EN 10067, *Hot rolled bulb flats — Dimensions and tolerances on shape, dimensions and mass*

EN 10080, *Steel for the reinforcement of concrete — Weldable reinforcing steel — General*

EN 10092-1*, Hot rolled spring steel flat bars — Part 1: Flat bars — Dimensions and tolerances on shape and dimensions*

EN 10092-2, *Hot rolled spring steel flat bars — Part 2: Ribbed and grooved spring leaves — Dimensions and tolerances on shape and dimensions*

EN 10106, *Cold rolled non-oriented electrical steel sheet and strip delivered in the fully processed state*

EN 10107, *Grain-oriented electrical steel sheet and strip delivered in the fully processed state*

EN 10108, *Round steel rod for cold heading and cold extrusion — Dimensions and tolerances*

EN 10131: 2006, *Cold rolled uncoated and zinc or zinc-nickel electrolytically coated low carbon and high yield strength steel flat products for cold forming - Tolerances on dimensions and shape*

prEN 10138-2, *Prestressing steels — Part 2: Wire*

prEN 10138-4, *Prestressing steels — Part 4: Bar*

EN 10140, *Cold rolled narrow steel strip — Tolerances on dimensions and shape*

EN 10143, *Continuously hot-dip coated steel sheet and strip — Tolerances on dimensions and shape*

EN 10162, *Cold rolled steel sections — Technical delivery conditions — Dimensional and cross-sectional tolerances*

EN 10169-1, *Continuously organic coated (coil coated) steel flat products — Part 1: General information (definitions, materials, tolerances, test methods)*

EN 10202, *Cold reduced tinmill products — Electrolytic tinplate and electrolytic chromium/chromium oxide coated steel*

EN 10205, *Cold reduced blackplate in coil form for the production of tinplate or electrolytic chromium/chromium oxide coated steel*

EN 10208-1, *Steel pipes for pipelines for combustible fluids — Technical delivery conditions — Part 1: Pipes of requirement class A*

EN 10208-2, *Steel pipes for pipelines for combustible fluids — Technical delivery conditions — Part 2: Pipes of requirement class B*

EN 10210-2, *Hot finished structural hollow sections of non-alloy and fine grain steels — Part 2: Tolerances, dimensions and sectional properties*

EN 10216-1, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties*

EN 10216-2, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 2: Non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10216-3, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 3: Alloy fine grain steel tubes*

EN 10216-4, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 4: Non-alloy and alloy steel tubes with specified low temperature properties*

EN 10216-5, *Seamless steel tubes for pressure purposes — Technical delivery conditions — Part 5: Stainless steel tubes*

EN 10217-1, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 1: Non-alloy steel tubes with specified room temperature properties*

EN 10217-2*, Welded steel tubes for pressure purposes — Technical delivery conditions — Part 2: Electric welded non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10217-3, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 3: Alloy fine grain steel tubes*

EN 10217-4, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 4: Electric welded non-alloy steel tubes with specified low temperature properties*

EN 10217-5, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 5: Submerged arc welded non-alloy and alloy steel tubes with specified elevated temperature properties*

EN 10217-6, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 6: Submerged arc welded non-alloy steel tubes with specified low temperature properties*

EN 10217-7, *Welded steel tubes for pressure purposes — Technical delivery conditions — Part 7: Stainless steel tubes*

EN 10218-2, *Steel wire and wire products — General — Part 2: Wire dimensions and tolerances*

EN 10219-2, *Cold formed welded structural hollow sections of non-alloy and fine grain steels — Part 2: Tolerances, dimensions and sectional properties*

EN 10220, *Seamless and welded steel tubes — Dimensions and masses per unit length*

EN 10222-1, *Steel forgings for pressure purposes — Part 1: General requirements for open die forgings.*

EN 10224, *Non-alloy steel tubes and fittings for the conveyance of aqueous liquids including water for human consumption - Technical delivery conditions*

EN 10248-2, *Hot rolled sheet piling of non alloy steels — Part 2: Tolerances on shape and dimensions*

EN 10249-2, *Cold formed sheet piling of non alloy steels — Part 2: Tolerances on shape and dimensions*

EN 10250-1, *Open die steel forgings for general engineering purposes — Part 1: General requirements*

EN 10255, *Non-alloy steel tubes suitable for welding and threading — Technical delivery conditions*

EN 10265, *Magnetic materials – Specification for steel sheet and strip with specified mechanical properties and magnetic permeability*

EN 10278, *Dimensions and tolerances of bright steel products*

EN 10279, *Hot rolled steel channels — Tolerances on shape, dimension and mass*

EN 10294-1, *Hollow bars for machining — Technical delivery conditions — Part 1: Non alloy and alloy steels*

EN 10296-1, *Welded circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 1: Non-alloy and alloy steel tubes*

EN 10296-2, *Welded circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 2: Stainless steel*

EN 10297-1, *Seamless circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 1: Non-alloy and alloy steel tubes*

EN 10297-2, *Seamless circular steel tubes for mechanical and general engineering purposes — Technical delivery conditions — Part 2: Stainless steel tubes*

EN 10303, *Thin magnetic steel sheet and strip for use at medium frequencies*

EN 10305-1, *Steel tubes for precision applications — Technical delivery conditions — Part 1: Seamless cold drawn tubes*

EN 10305-2, *Steel tubes for precision applications — Technical delivery conditions — Part 2: Welded cold drawn tubes*

EN 10305-3, *Steel tubes for precision applications — Technical delivery conditions — Part 3: Welded cold sized tubes*

EN 10305-4, *Steel tubes for precision applications — Technical delivery conditions — Part 4: Seamless cold drawn tubes for hydraulic and pneumatic power systems*

EN 10305-5, *Steel tubes for precision applications — Technical delivery conditions — Part 5: Welded and cold sized square and rectangular tubes*

EN 10305-6, *Steel tubes for precision applications — Technical delivery conditions — Part 6: Welded cold drawn tubes for hydraulic and pneumatic power systems*

EN 10312, *Welded stainless steel tubes for the conveyance of aqueous liquids including water for human consumption - Technical delivery conditions*

EN 10341, *Cold rolled electrical non-alloy and alloy steel sheet and strip delivered in the semi-processed state*

EN ISO 1127, *Stainless steel tubes —Dimensions, tolerances and conventional masses per unit length (ISO 1127:1992)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
liquid steel [1)]
steel in the liquid state ready for pouring and obtained from the melting of raw materials

3.2
ingots and semi finished products [2)]

3.2.1
ingots
products obtained by pouring liquid steel into moulds of a shape appropriate to the subsequent processing [3)] into semi finished products, or flat or long products, generally by hot rolling or forging

NOTE 1 The shape generally resembles a truncated pyramid or truncated cone; the side surfaces may be corrugated and the corners more or less rounded. Depending on subsequent conversion requirements, ingots may be dressed and/or hot scarfed or cropped without altering their status as “ingots”.

1) See **B.1.2**.

2) See **B.1.3** and **B.1.4**.

3) In the case of ingots remelted by the vacuum arc of electroslag process, the products are obtained by melting, in a mould of appropriate shape, steel electrodes that have been previously cast, forged or rolled.

NOTE 2 According to the cross section a distinction is made between the following:

— Ingots, having a cross section that may be square, rectangular (of width up to twice the thickness), polygonal, round, oval or shaped according to the profile to be rolled; and

— Slab ingots, of rectangular cross section of width twice the thickness or over.

3.2.2
semi finished products [4)]
products obtained by:

— continuous casting that may or may not be followed by rolling, forging or cutting;

— pressure casting;

— rolling, forging or cutting of ingots or large section continuous cast products and generally intended for conversion into flat or long products by hot rolling or forging, or for the manufacture of forgings

NOTE The cross sections may be of various shapes (see **3.2.2.1** to **3.2.2.5**); the cross sectional dimensions are constant along the length with wider tolerances than those of the corresponding flat or long products and side corners more or less rounded. The side surfaces are sometimes slightly convex or concave, retaining rolling, forging or continuous casting marks and may be partly or totally dressed to remove surface defects, e.g. by cutting tool, torch or grinding.

3.2.2.1
semi finished products of square cross section
semi finished products with sides of 50mm or over, generally described as blooms if the sides are greater than 200mm, or as billets if smaller

NOTE These dimensions may be less for certain types of steel, e.g. high speed steels.

3.2.2.2
semi finished products of rectangular cross section
semi finished products of cross section area 2 500 mm^2 or over of width up to twice the thickness, generally described as blooms if the cross section area is greater than 40 000 mm^2, or as billets if smaller

3.2.2.3
flat semi finished products
products of thickness generally 50 mm or over of width twice the thickness or over, generally described as slabs

3.2.2.4
round semi finished products [5)]
continuously cast or forged semi finished products of circular cross section

3.2.2.5
blanks for sections
semi finished products intended for the manufacture of sections that have been preformed for that purpose

NOTE 1 The cross section area is generally over 2 500 mm^2.

NOTE 2 In many countries the long products in question are obtained by rolling semi finished products of square or rectangular cross section.

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4) See **B.1.5** and **B.2.2**.

5) See **B.1.4** and **B.2.2.2**.

3.3
flat products

3.3.1
general
products having almost rectangular cross sections, the width being much greater than the thickness

NOTE The surfaces are generally smooth except for certain products, e.g. floor plates, that show regular raised or indented surface patterns.

3.3.2
uncoated flat products
flat products without any coating or surface treatment

NOTE Flat products that have received a simple coating for the purpose of protection from corrosion or mechanical damage, e.g. passivation, organic coatings, paper, oil, lacquer etc. are defined as uncoated flat products.

3.3.2.1
hot rolled uncoated flat products
flat products manufactured by hot rolling semi finished products, more rarely by hot rolling ingots

NOTE Hot rolled flat products include those that have been given a very light cold rolling pass, normally less than 5 % reduction, known as a “skin pass” or “dressing pass”.

3.3.2.1.1
wide flat
flat product of width over 150 mm up to and including 1 250 mm and thickness generally over 4 mm, always supplied in lengths, i.e. not coiled , and the edges are square i.e. hot rolled on the four sides (or in box passes)

3.3.2.1.2
plate and sheet [6)]
flat rolled product, the edges being allowed to deform freely, supplied flat and generally in square or rectangular shapes with a width of 600 mm or over; but also in any other shape, e.g. circular or according to a design sketch

NOTE 1 The edges may be as rolled or sheared, flame cut or chamfered. The product may also be delivered pre-curved. Hot rolled plate and sheet are defined as:

— sheet: thickness less than 3 mm;

— plate: thickness 3 mm or over.

NOTE 2 Plate and sheet may be produced:

a) directly on a reversing mill (this product is generally known as quarto plate), or by cutting from a parent plate rolled on a reversing mill;

b) by cutting from hot rolled wide strip; this product is generally known as hot rolled sheet or plate.

3.3.2.1.3
strip
hot rolled flat product that immediately after the final rolling pass or after pickling or continuous annealing, is wound into a regular coil

NOTE 1 As rolled, strip has slightly convex edges, but may also be supplied with sheared edges or slit from wider strip.

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6) See **B.2.3**.

NOTE 2 Hot rolled strip is further defined as:

a) hot rolled wide strip: width 600 mm or over;

b) hot rolled slit wide strip: rolling width 600 mm or over, slit to widths less than 600 mm before supply;

c) hot rolled narrow strip: rolling width less than 600 mm.

NOTE 3 After decoiling and transverse cutting, hot rolled strip may be supplied as cut lengths or sheet.

3.3.2.2
cold rolled uncoated flat products
uncoated flat products that have undergone a reduction in cross-section of 25 % or over by cold rolling

NOTE For flat products of rolling width less than 600 mm and for certain qualities of special steel, levels of reduction of cross-section less than 25 % may be included.

3.3.2.2.1
plate and sheet
cold rolled flat product, the edges being allowed to deform freely, supplied flat and generally in square or rectangular shapes with a width of 600 mm or over, but also in any other shape, e.g. circular or according to a design sketch

NOTE The edges may be as rolled sheared, flame cut or chamfered.

3.3.2.2.2
strip
cold rolled flat product that immediately after the final rolling pass, or after pickling or continuous annealing, is wound into a regular coil

NOTE 1 As rolled, strip has slightly convex edges, but may also be supplied with sheared edges or slit from wider strip.

NOTE 2 Cold rolled strip is further defined as:

a) cold rolled wide strip: width 600 mm or over;

b) cold rolled slit wide strip: rolling width 600 mm or over, slit to widths less than 600 mm before supply;

c) cold rolled narrow strip: rolling width less than 600 mm.

NOTE 3 After decoiling and cutting to length, cold rolled strip may be supplied as cut lengths or sheet.

3.3.3
electrical steels [7)]
steels characterised by their magnetic properties, that are intended for use in magnetic circuits in electrical machines

NOTE 1 They are supplied in the form of cold rolled sheet or strip, generally less than 2 mm thick and of width up to and including 1 500 mm.

NOTE 2 There are also certain hot rolled flat products in thicknesses of 1,5 mm up to 5 mm with specified mechanical and magnetic properties.

NOTE 3 Electrical steels are defined by the following specified principal magnetic properties:

a) specific total loss in *W*/kg at a specified level of peak magnetic flux density, T and frequency Hz;

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7) See **B.1.6**.

b) peak magnetic flux density, T at a specified level of peak magnetic field strength *A/m* and frequency Hz.

Electrical steels are further defined as follows:

3.3.3.1
non oriented grain electrical steels
non alloy steels and steels alloyed with silicon or silicon and aluminium that are essentially isotropic in their magnetic properties; i.e. the magnetic properties are similar both in the direction of rolling and in the transverse direction

NOTE They may be supplied either:

a) in the semi processed state with the required specific total loss achieved after the material has been annealed by the user according to a reference heat treatment; or

b) in the finally annealed state with specific total loss. The product may be supplied uncoated or with an insulating coating on one or both surfaces.

3.3.3.2
grain oriented electrical steels
steels alloyed with silicon that are anisotropic in that they possess a metallurgical structure that gives preferential magnetic properties in the direction of rolling

NOTE These steels are supplied with an insulating coating on both surfaces.

3.3.4
tin mill and allied products for packaging [8)]

3.3.4.1
blackplate [9)]
non alloy, low carbon steel supplied in strip or sheet form that has been single or double cold reduced

NOTE 1 Single reduced blackplate is supplied in thicknesses from 0,17 mm up to and including 0,49 mm, double reduced blackplate in thicknesses from 0,14 mm up to and including 0,29 mm.

NOTE 2 Blackplate is normally used to manufacture tinplate or electrolytic chromium coated sheet (ECCS), but in certain packaging applications it may be used as such. In such cases the product must be suitable for varnishing (lacquering) or printing.

3.3.4.2
tinplate
non alloy, low carbon steel supplied in strip or sheet form that has been single or double cold reduced, and coated on both surfaces with tin in a continuous electrolytic process

NOTE 1 Single reduced tinplate is supplied in thicknesses from 0,17 mm up to and including 0,49 mm, double reduced tinplate in thicknesses from 0,14 mm up to and including 0,29 mm. Tinplate is supplied normally with a passivation treatment and a protective coating of oil and is suitable for varnishing (lacquering) or printing.

NOTE 2 Tinplate may also be obtained by hot dipping in a bath of molten tin.

3.3.4.3
tinned sheet and strip
non alloy, low carbon steel supplied in strip or sheet form of a thickness of 0,50 mm or over and tin coated on both surfaces

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8) See **B.1.6** and **B.2.4.** These products may have other uses than for packaging.

9) See **B.2.5**.

3.3.4.4
electrolytic chromium/chromium oxide coated steel (ECCS)
non alloy, low carbon steel supplied in strip or sheet form that may have been single or double cold reduced; coated on both surfaces by a cathodic process with a duplex film of metallic chromium adjacent to the steel substrate with an outer layer of hydrated chromium oxide or hydroxide

NOTE Single reduced ECCS is supplied in thicknesses from 0,17 mm up to and including 0,49 mm, double reduced ECCS in thicknesses from 0,14 mm up to and including 0,29 mm. ECCS is supplied normally with a protective coating of oil and is suitable for varnishing (lacquering) or printing.

3.3.5
coated hot or cold rolled flat products [10)]
hot or cold rolled products with a permanent coating other than those defined in **3.3.2**, **3.3.3** or **3.3.4** whether:

a) on both surfaces of:

— equal thickness on each surface;

— different thickness: differential coating;

b) on one surface only.

NOTE All figures for coatings shown below are nominal and relate to the current technology; they may change in future.

According to the type of coating, the products are classified as follows:

3.3.5.1
metal coated sheet and strip

3.3.5.1.1
hot dipped metal coated sheet and strip
flat products which have been metal coated by hot dipping in a molten bath, described by reference to the total coating mass, in g/m^2.

These include:

a) lead tin alloy coated sheet and strip (terne plate);

NOTE 1 In general, the highest nominal mass for the coating corresponds to a minimum of 120 g/m^2 including both surfaces.

b) zinc coated sheet and strip (galvanised sheet and strip);

NOTE 2 The total mass of the zinc varies in general between a value as low as possible and 700 g/m^2 [11)]. The coatings may have a spangle finish or be without spangle. After zinc coating, the surfaces may be passivated by chromating or phosphating or treatment with compounds of vanadium and/or titanium. This final surface treatment does not alter the definition of such products as "zinc coated flat products".

c) aluminium or aluminium-silicon alloy coated sheet and strip;

NOTE 3 Sheet and strip coated with aluminium or an aluminium silicon alloy: the total mass of the alloy varies in general between 40 g/m^2 and 300 g/m^2.

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10) See **B.1.6**.

11) By agreement, the total coating mass may exceed 700 g/m^2.

d) aluminium zinc coated sheet and strip

NOTE 4 The total mass of the alloy varies in general between 90 g/m^2 and 450 g/m^2.

NOTE 5 According to the aluminium content a distinction is made between:

— aluminium zinc alloys (aluminium 50 % or over);

— zinc aluminium alloys (aluminium over 3 % but less than 50 %).

3.3.5.1.2
electrolytically metal coated sheet and strip
flat products metal coated electrolytically, described by reference to the single surface coating thickness in µm

These include:

3.3.5.1.2.1
electrolytically lead tin coated sheet and strip
sheet and strip coated electrolytically with a lead tin alloy with coating thickness generally between 2,5 µm and 10 µm on each surface

3.3.5.1.2.2
electrolytically zinc coated sheet and strip (electrozinc sheet)
sheet and strip coated electrolytically with zinc with coating thickness generally between 1 µm and 10 µm on each surface

NOTE This coating never shows a spangle finish. After zinc coating, the surfaces may be passivated by chromating or phosphating or treatment with compounds of vanadium and/or titanium. This final surface treatment does not alter the definition of such products as "zinc coated flat products".

3.3.5.1.2.3
zinc nickel coated sheet and strip
Sheet and strip coated electrolytically with zinc nickel alloy with coating thickness generally between 1 µm and 8,5 µm on each surface

3.3.5.2
sheet and strip with organic coatings
uncoated or metal coated (e.g. zinc coated) sheet and strip, subsequently coated with an organic material or a mixture of metal powder and organic material by one of the following continuous processes:

a) by the application of one or more coats of paint or other type of product;

NOTE 1 After drying, the thickness of the coating varies according to its character from 2 µm to 400 µm on each surface.

b) by the application of an adhesive film whether or not followed by a coating of organic materials

NOTE 2 The coating may have different surface designs and a thickness generally between 35 µm to 500 µm on each surface.

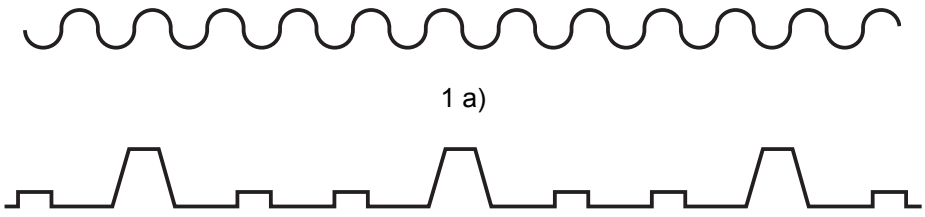
3.3.5.3
sheet and strip with miscellaneous inorganic coatings
sheet and strip coated with an inorganic material, e.g. vitreous enamel

3.3.6
profiled sheet
sheet usually manufactured from coated sheet, but also from uncoated sheet, with a width much greater than the height of the profile (see Figure 1)

NOTE A distinction is made between:

a) corrugated sheet: products showing large or small longitudinal corrugations, mainly used for cladding, flooring and roofing (Figure 1a);

b) ribbed sheet: products with rectangular or trapezoidal longitudinal ribs (Figure 1b).



1 a)

1 b)

Figure 1 — Illustration of typical profiled sheet (see 3.3.6)

3.3.7
composite products [12)]
products comprising:

a) plate, sheet and strip clad with steels or alloys to resist for example wear, chemical corrosion or heat distortion. Bonding is usually achieved by rolling, spraying, welding or explosion;

b) sandwich steel sheet formed from two sheets bonded together by means of a synthetic sound insulating plastic layer;

c) sandwich panels fabricated from two ribbed sheets bonded by an insulating layer (see Figure 2)

12) See **B.1.8**.

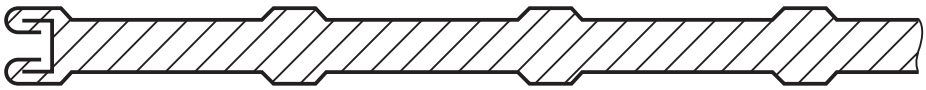


Figure 2 — Illustration of typical sandwich panel [see 3.3.7 c)]

3.4
long products

3.4.1
general
those products that do not conform to the definition of flat products (see **3.3.1**)

NOTE They have a constant cross-section that is usually defined by a standard that fixes the normal size ranges and the tolerances on shape and dimensions. The surface is generally smooth, but in certain cases, e.g. reinforcing bars, may have a regularly raised or indented pattern.

3.4.2
rod
hot rolled long product having a nominal size generally of 5 mm or above and wound into irregular coils

NOTE The cross section may be round, oval, square, rectangular, hexagonal, octagonal, half round or of any similar shape. Its surface is smooth. Rod is generally intended to undergo further processing. It may also be used, with or without further processing, e.g. cold deforming, for the fabrication of welded mesh or for other elements used to reinforce concrete.

3.4.3
wire [13)]
product of constant full cross section along its length, obtained by cold drawing rod through a reducing die or passing under pressure between rollers and rewinding the drawn product

NOTE 1 The cross section is generally round, though sometimes oval, rectangular, square, hexagonal, octagonal or other convex section.

NOTE 2 The manufacturing processes give close control of geometric (size, surface condition) and mechanical properties. Wire may be supplied uncoated (as drawn, annealed) or coated (e.g. with zinc, copper, nickel or plastic materials).

NOTE 3 Heat treatments and/or surface treatments may be carried out during the course of manufacture to improve the properties of wire.

3.4.4
hot finished bars
products supplied in straight lengths but never in coils, thus differentiating them from rod

3.4.4.1
hot rolled bars [14)]
hot rolled products in straight lengths of constant transverse section having a solid (convex) cross section as defined in **3.4.4.1.1** to **3.4.4.1.3**

3.4.4.1.1
rounds
bars having a circular cross-section of diameter generally 8 mm or above

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13) See **B.2.6**.

14) See **B.1.7**.

3.4.4.1.2
squares, hexagons and octagons
bars having square, hexagonal or octagonal cross-sections; the side is generally 8 mm or over for squares or 13 mm or over for hexagons

NOTE Squares of sides up to 50 mm with rounded corners are considered to be square bars.

3.4.4.1.3
flats
bars of rectangular cross section rolled on the four faces of thickness generally 5 mm or above and with a width not over 150 mm

3.4.4.1.4
bars of special shape
products hot rolled in lengths of particular full cross section shapes including in particular trapezoids, bevels, triangles, bars for grooved springs, semi rounds and half flat semi rounds

NOTE Special shapes are generally rolled in limited quantities.

3.4.4.2
forged bars
products obtained by forging and that do not undergo subsequent hot conversion

NOTE These products are mainly in the form of rounds or squares.

3.4.4.3
hollow mining drill bars[15]
bars with an internal hollow of any cross section shape, suitable for the manufacture of drill bits, with a maximum external cross section dimension over 15 mm up to and including 52 mm that is at least twice the maximum dimension of the cross section of the internal hollow

3.4.5
bright products

3.4.5.1
drawn products
products of various cross section shapes obtained, after descaling, by drawing of hot rolled bars or rod on a draw bench (cold deformation without removing material)

NOTE This operation gives the product special features with respect to shape, dimensional accuracy and surface finish. In addition, the process causes cold working of the product that can be eliminated by subsequent heat treatment. Products in lengths are delivered straightened regardless of size.

3.4.5.2
turned products
round bars produced by turning on a lathe where the product can be further processed by straightening and polishing

NOTE 1 This operation gives the bar special features with respect to shape, dimensional accuracy and surface finish. The removal of metal is carried out in such a way that the bright product is generally free from rolling defects and surface decarburization.

NOTE 2 For technical reasons some bars ordered as hot rolled products may be delivered roughly turned (peeled), nevertheless such products are treated as hot rolled products and not bright products.

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[15] See **B.1.7**

3.4.5.3
ground products
drawn or turned round bars given an improved surface quality and dimensional accuracy by grinding or grinding and polishing

3.4.6
deformed products for reinforcement and prestressing of concrete
products with a cross section that is round or almost round, with crenelated or ribbed surfaces, for reinforcement and prestressing of concrete and supplied in the forms defined in **3.4.6.1** to **3.4.6.3**

3.4.6.1
rod
see definition in **3.4.2**

3.4.6.2
wire
see definition in **3.4.3**

3.4.6.3
bars [16)]
see definition in **3.4.4**

NOTE These bars may, after hot rolling, have undergone a controlled cold deformation, for example lengthening or twisting about their longitudinal axis.

3.4.7
hot rolled sections

3.4.7.1
railway materials
products used in the construction of railway tracks and other systems of rails

3.4.7.1.1
railway track products
hot rolled railway products as follows:

3.4.7.1.1.1
heavy railway products:

a) rails of linear mass 20 kg/m or over (except those in **3.4.7.1.2**);

b) sleepers of linear mass 15 kg/m or over

3.4.7.1.1.2
light railway products:

a) rails of linear mass up to 20 kg/m (except those in **3.4.7.1.2**);

b) sleepers of linear mass up to 15 kg/m;

c) conductor rails with specified electrical resistivity properties;

d) rails for switches and crossings;

e) guide rails;

16) See **B.2.7**.

f) brake rails;

g) fish plates;

h) base plates (also known as sole, tie or bearing plates)

3.4.7.1.2
products for other rail systems
hot rolled products for other rail systems as follows:

a) crane rails;

b) grooved rails

3.4.7.2
piling

3.4.7.2.1
sheet piling
product obtained by hot rolling or cold forming (drawing, bending, roll forming, etc.) to a shape such that, by interlocking of the joints or fitting of longitudinal grooves or by means of special fasteners, it forms partitions or continuous walls

NOTE Sheet piling is distinguished according to its form in cross section and its application: See Figure 3 for examples.

a) U and Z sheet piling;
b) straight web or flat sheet piling;
c) fabricated sheet piling [17];
d) boxed piles: fabricated from U or Z sheet piles and steel plates;
e) combined walls:
   i interlocking H piling;
   ii H-piles with intermediary Z-sheet piling;
   iii interlocking tubular piles;
   iv tubular piles with intermediate sheet piling;
   v combined walls using boxed piles;
f) cold formed sheet piling:
   i sheet piling Ω (omega) and Z;
   ii trench sheeting;
g) corner sections.

3.4.7.2.2
fabricated bearing piling
fabricated piling, made up from steel elements and used for bearing purposes

NOTE Boxed piles may be used as fabricated bearing piling.

17) See **B.2.8**.

3.4.7.2.3
tubular fabricated bearing piling
tube of circular, square or rectangular cross section, driven into the ground to transmit the weight of structures to the soil by resistance developed at its base and by friction along its surface

NOTE The terms sheet piling and bearing piling include piling that has undergone certain finishing operations such as piercing or welding of attachments.

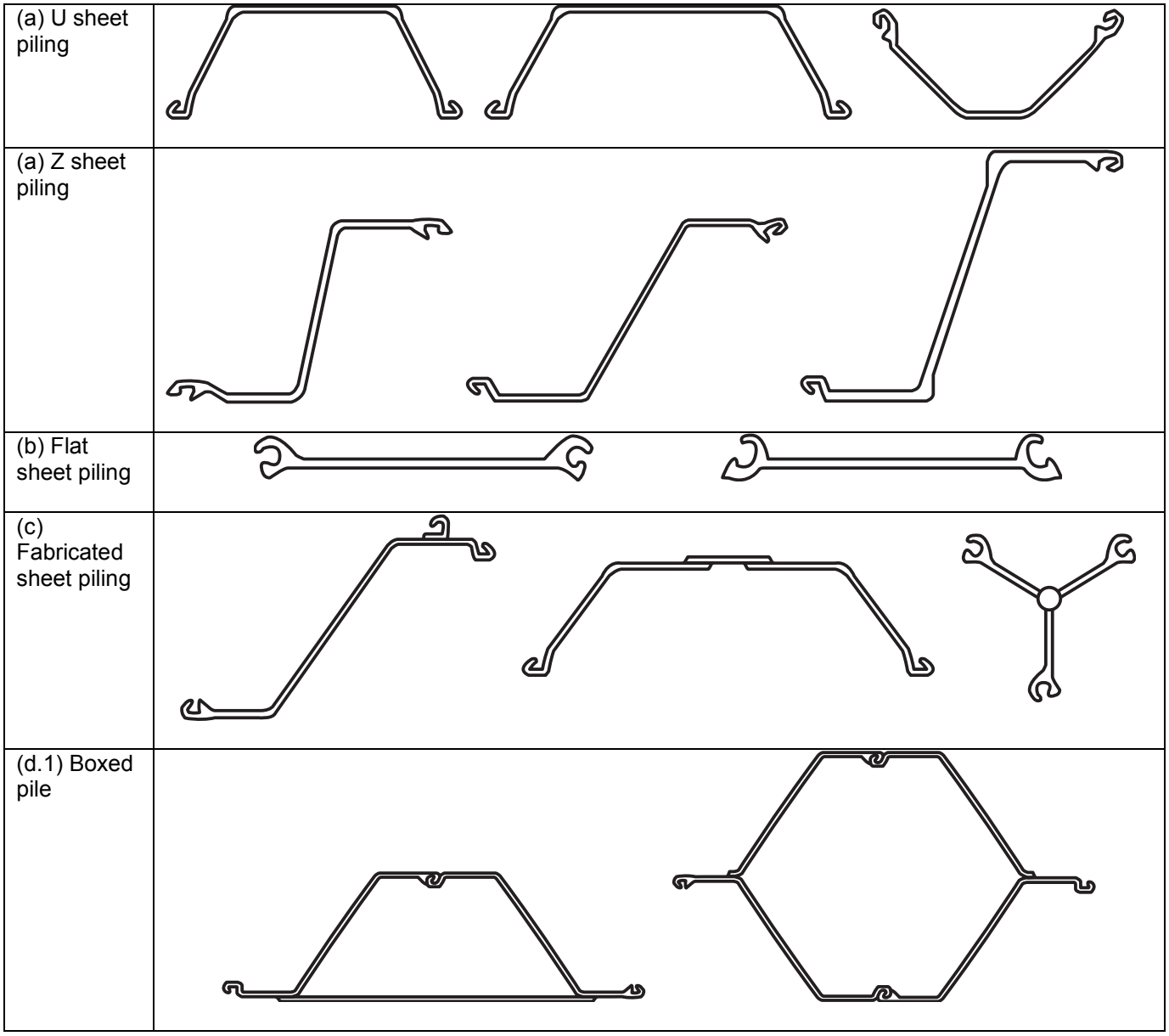


Figure 3 — Illustrations of typical sheet piling (see 3.4.7.2.1)

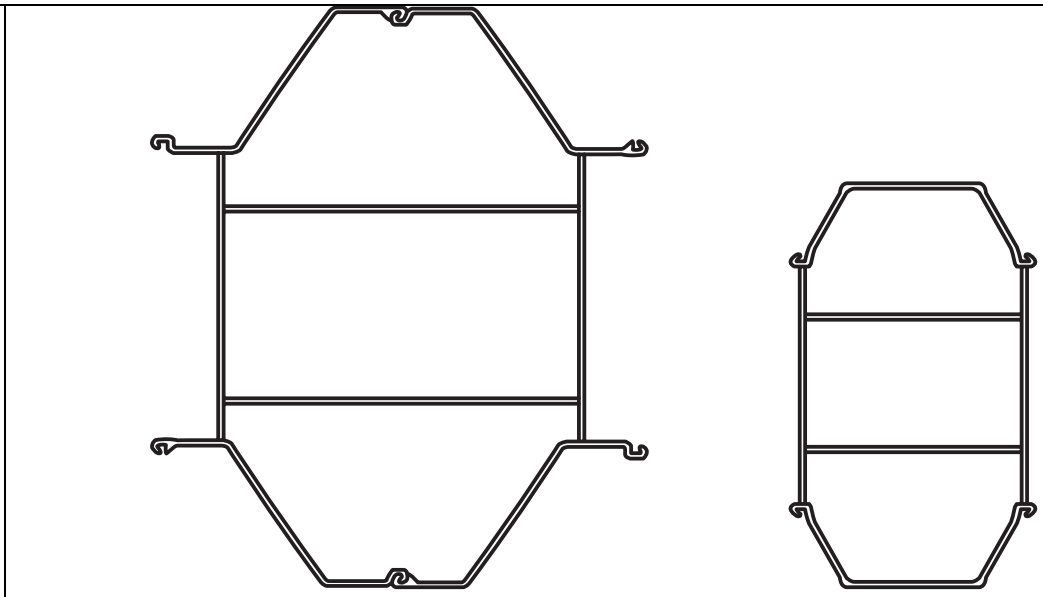
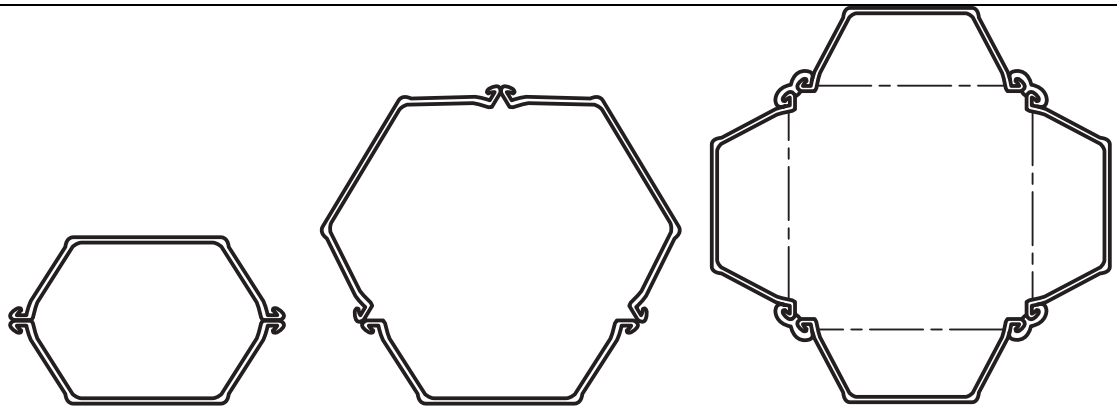
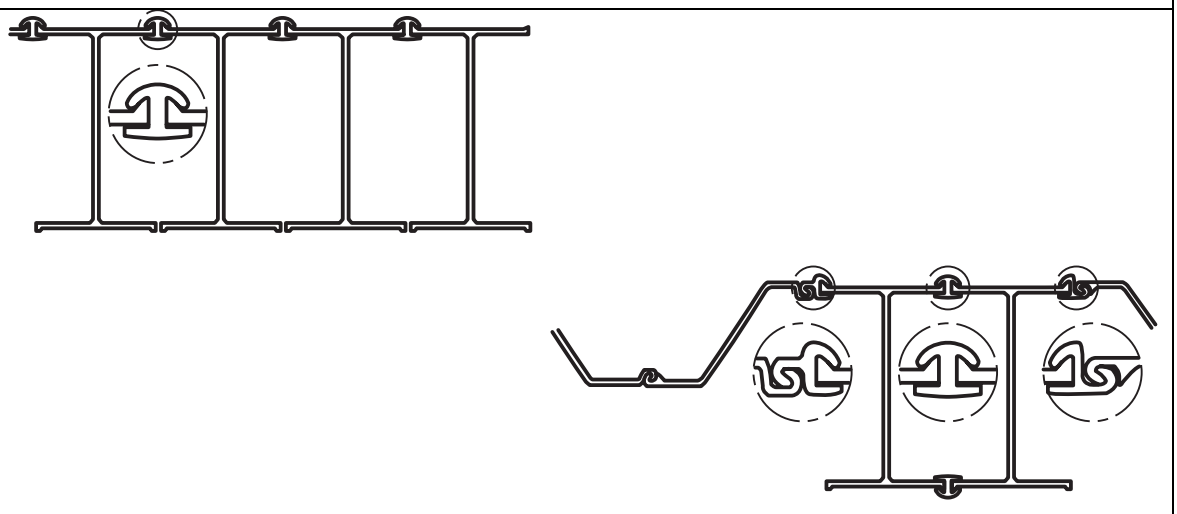
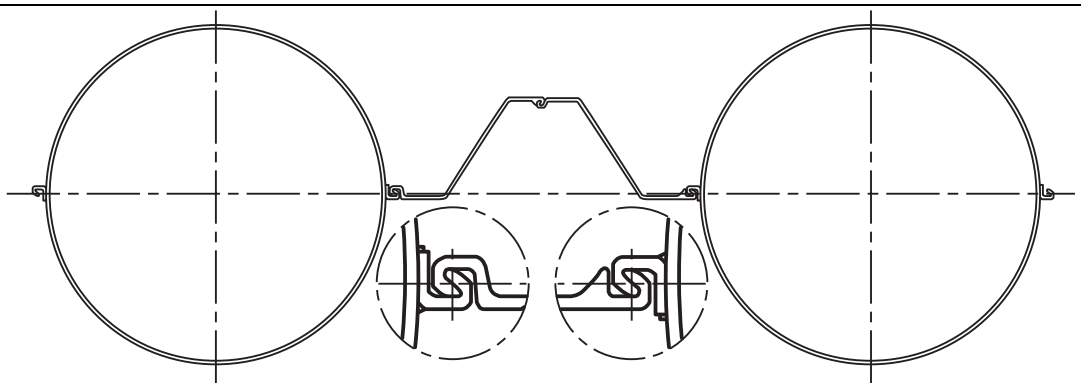
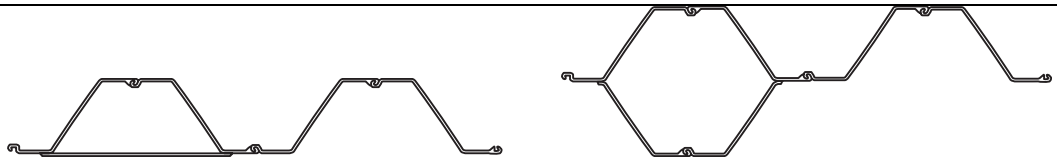
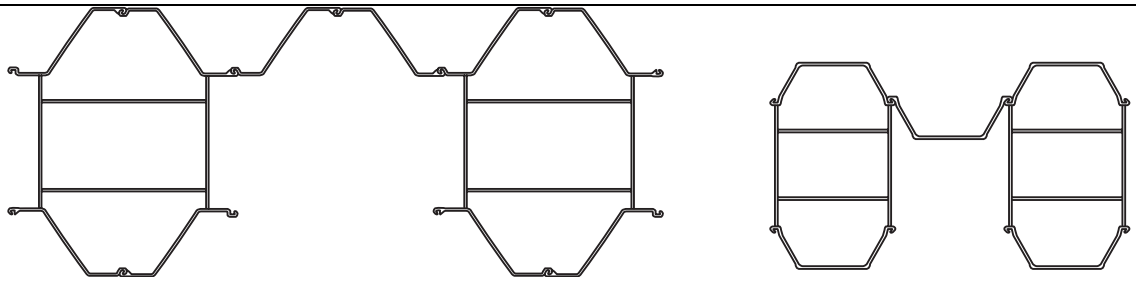
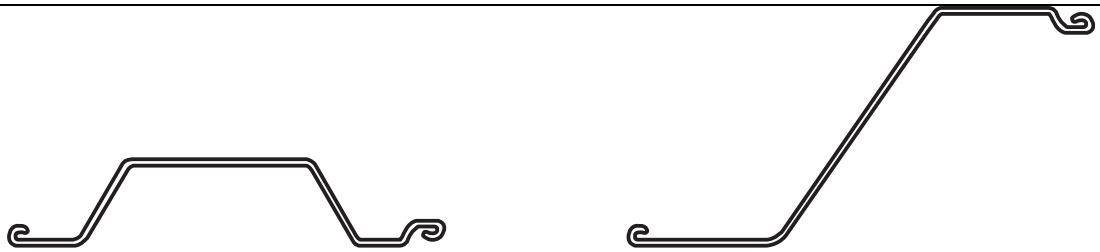
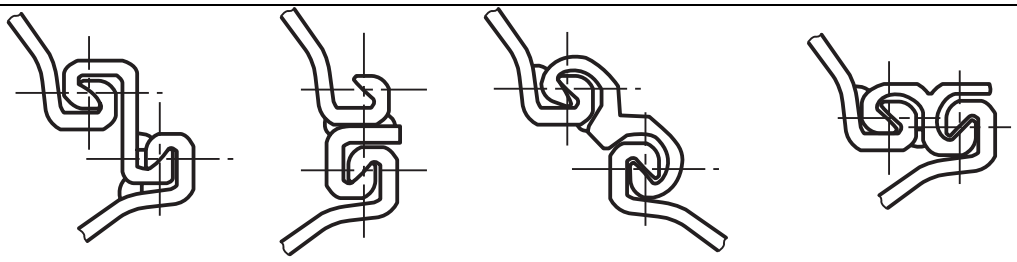
(d.2) Boxed pile	
(d.3) Boxed pile	
(e.i) Interlocking H-Piling (e.ii) H piles with intermediary Z sheet piling	

Figure 3 — Illustrations of typical sheet piling (see 3.4.7.2.1) *(Continued)*

(e.iv) Tubular pile with intermediate sheet piling	
(e.v1) Boxed pile combined wall	
(e.v2) Boxed pile combined wall	
(f.i) Cold formed sheet piling: Ω and Z piling	
(f.ii) Trench sheeting	
(g) Corner sections	

NOTE Design of interlocks vary according to manufacturer.

Figure 3 — Illustrations of typical sheet piling (see 3.4.7.2.1) *(Concluded)*

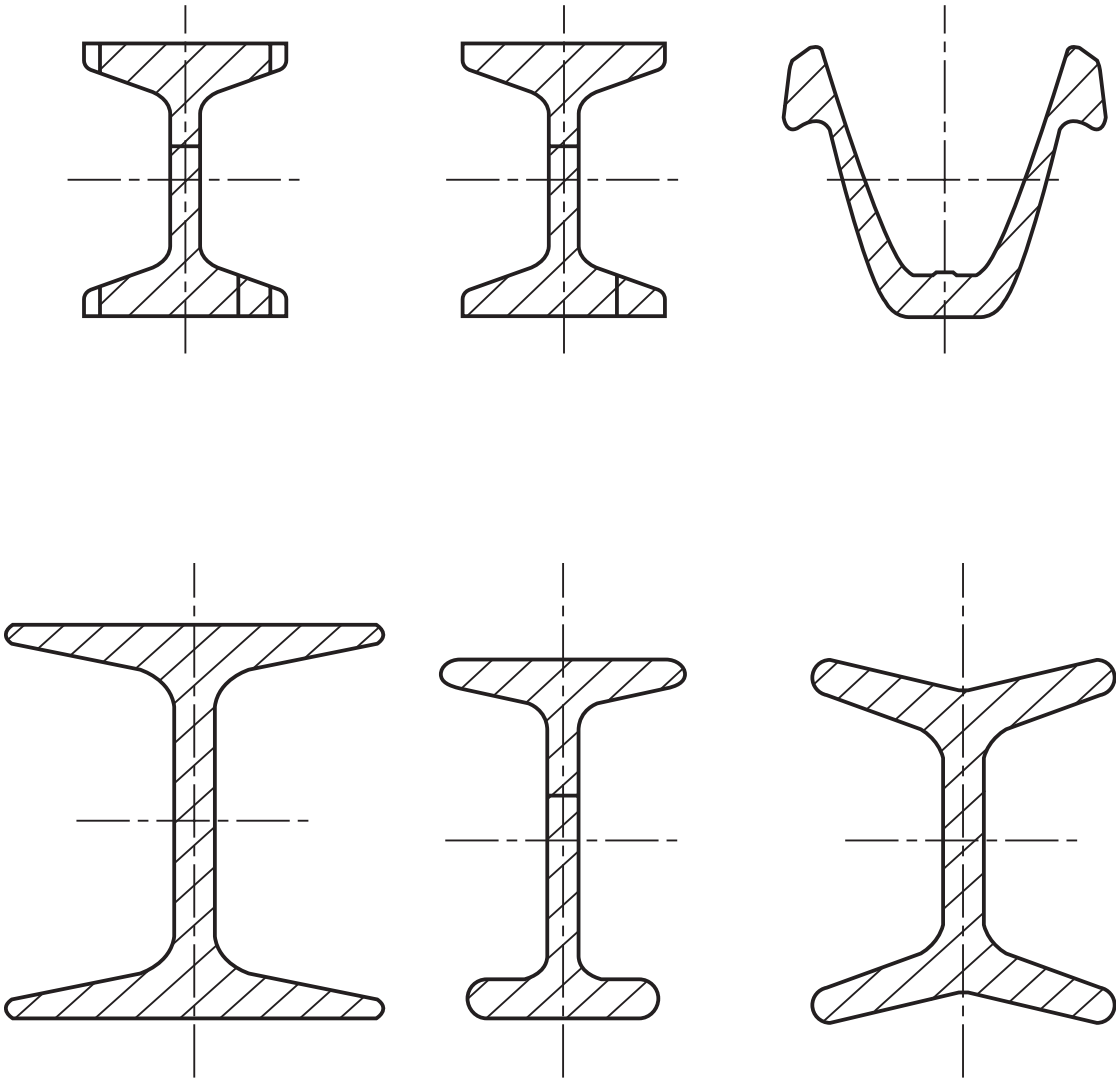


Figure 4 — Illustration of typical mining frame sections (see 3.4.7.3)

3.4.7.3
mining frame sections
products with cross sections resembling the letter I or the Greek capital letter Omega (Ω)

NOTE Mining frame I sections are distinguished from other I sections by a greater slope of the inside face of the flanges. Generally, they also have a flange width over 0,70 of the nominal web height (see Figure 4).

3.4.7.4
heavy sections
hot rolled products with cross sections resembling the letters I, H, U (see Figure 5)

NOTE 1 They have the following characteristics:

a) web height of 80 mm or over;

b) surfaces of the webs are continued by fillets to the inside faces of the flange;

c) flanges are generally symmetrical and of equal width (see also **3.4.7.4.5**);

d) outside faces of the flanges are parallel;

e) flanges are either of decreasing thickness from the web to the edge, (“tapered flanged”) or of uniform thickness (“parallel flanged”).

NOTE 2 A distinction is made between:

a) parent sections: sections with web and flange thickness considered as standard;

b) thin sections: sections manufactured with the same series of rolls as used in producing the corresponding parent section but which, for an approximately equal web height, have thinner web and/or flanges (as a result of adjustment of the vertical or horizontal rolls);

c) thick sections: sections manufactured with the same series of rolls as used in producing the corresponding parent section but which for an approximately equal web height, have a thicker web and/or flanges (as a result of adjustment of the vertical or horizontal rolls).

3.4.7.4.1

I sections (narrow and medium flanges)

sections having a cross section shape resembling the letter I where the flanges are not wider than 0,66 of the nominal height of the section and less than 300 mm

3.4.7.4.2

H Sections (wide flanged beams)

sections having a cross section shape resembling the letter H where the flanges are wider than 0,66 of the nominal height of 300 mm or over. Sections with flanges wider than 0,8 of the nominal height are sometimes called “columns”

3.4.7.4.3

U Sections (channels)

sections having a cross section shape resembling the letter U

NOTE In the standardised series the flanges have a maximum width of (h/2 + 25) mm where h is the overall height including the flanges.

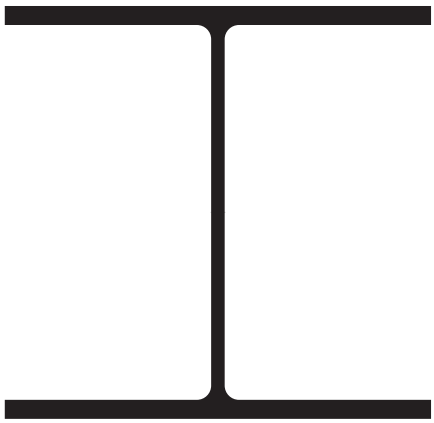
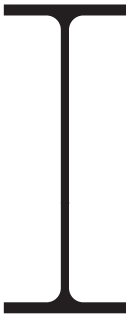
H section		
I Section		
U Section		
	Parallel flanged	Tapered flanged

Figure 5 — Illustration of typical heavy sections (see 3.4.7.4)

3.4.7.4.4
bearing piles
sections having a cross section shape resembling the letters H or I where the thicknesses of the web and flanges are identical

NOTE Bearing piles may also be equipped with laggings (enlargements along the length of the pile or at its bottom).

3.4.7.4.5
special heavy sections
sections having I, H, U or similar cross section shapes with a web height of 80 mm or above but with features such as unequal or asymmetric flanges, or non standard web thickness

NOTE These products are generally manufactured in limited quantities.

3.4.7.5
other sections [18)]

3.4.7.5.1
small U, I and H sections
sections having a cross section shape resembling the letters U, I or H and where the web height is less than 80 mm (see Figure 5)

3.4.7.5.2
angles
sections having a cross section shape resembling the letter L

NOTE Angles can be defined as equal or unequal angles depending on the ratio of the flange widths. The corners of the flanges are rounded.

3.4.7.5.3
T sections with equal flanges
sections having a cross section shape resembling the letter T, where the corners are rounded and the flanges and web are slightly tapered, and where the flanges are of equal width

NOTE T Sections can also be fabricated from H Sections that are split along the web. These have parallel web and flange profiles.

3.4.7.5.4
bulb flats
generally rectangular cross section shapes with a bulge along the full length of a longitudinal edge of one of the wider surfaces and a width generally up to 430 mm

3.4.7.5.5
special sections [19)]
products hot rolled in lengths usually of small open cross section or of very special shape that are generally rolled in limited quantities and are not covered by **3.4.7.4** or **3.4.7.5.1** to **3.4.7.5.4**

NOTE 1 This class includes in particular Z sections, T sections with unequal flanges, square edged L, U and T sections, track shoe sections, etc.

NOTE 2 These sections may also be obtained by hot extrusion.

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18) See **B.1.7**.

19) See **B.1.9**.

3.4.8
welded sections
long products of open cross sections that have cross section shapes similar to the products defined in **3.4.7.4** and **3.4.7.5**, but instead of being obtained directly by hot rolling, are made up by welding together combinations of hot rolled long products, hot rolled flat products or cold rolled flat products

3.4.9
cold formed sections
cold formed long products having various cross section shapes, either open or with edges abutting, constant along their length

NOTE Cold formed sections are made from coated or uncoated hot or cold rolled flat products whose thicknesses are only slightly modified by the cold forming process (e.g. profiling, drawing, press forming, flanging etc.). They comprise of:

a) general purpose cold formed sections, e.g. L, U, C, Z, Ω (Omega) sections;

b) products for particular applications including cold formed sheet piling (see **3.4.7.2**), crash barriers, building frames, door frames, lorry and wagon chassis.

3.4.10
tubular products

3.4.10.1
tubes
hollow long products, open at both ends, of round or polygonal cross-section

NOTE 1 Tubes may be finished at the ends, e.g. by threading or flaring, or coated on the interior and/or exterior surfaces (organic or metallic coating) or have integral or fitted flanges.

NOTE 2 Small diameter tubes may be supplied coiled.

3.4.10.2
seamless tubes
tubes made by piercing a solid product to obtain a tube hollow, which is further processed either hot or cold, into its final dimensions

NOTE Seamless tubes may also be manufactured by centrifugal casting.

3.4.10.3
welded tubes
tubes made by forming a hollow profile from a flat product and welding adjacent edges together

NOTE After welding the tube may be further processed, either hot or cold, into its final dimensions. The welds may be longitudinal or helical.

3.4.10.4
hollow sections
seamless or welded tubes of circular, square, rectangular or elliptical cross-section used in construction, e.g. of structural steelwork, cranes, vehicle chassis, handrails etc.

3.4.10.5
hollow bars
circular seamless tubes, intended for the manufacture of engineering components by machining, e.g. by removing shavings with a tool

NOTE These products are distinguished from seamless fluid carrying tubes or hollow sections by their dimensions and metallurgical properties that confer machinability, suitability for heat treatment and a surface condition suitable for final machining of the component.

3.5
other products

3.5.1
open die forgings [20)]
products obtained by forming steel at a suitable temperature by impact or pressure, using an open die to produce approximate shapes that do not require further hot deformation

NOTE 1 They are generally machined to final shape. Open-die forgings include products that are preforged and finished in ring rolling mills, e.g. tyres.

NOTE 2 Forgings exclude semi-finished products defined in **3.2.2** and bars defined in **3.4.4.2**.

3.5.2
closed die forgings and stampings
products obtained by forming steels at a specified temperature in a closed die that determines the required shape and volume of the product

NOTE Deformation may be carried out in a press (closed die forging) or under a drop hammer (stampings).

3.5.3
castings
products whose shapes and final dimensions, apart from any dressing or machining, are obtained directly by the solidification of liquid steel cast in sand moulds, fire clay or other refractory materials, or more rarely in metal or graphite permanent moulds

3.5.4
powder metallurgy products

3.5.4.1
steel powder
collection of steel particles of dimensions generally up to 1 mm

3.5.4.2
sintered products
products manufactured from powder by pressing and sintering and sometimes by re-pressing

NOTE 1 These products often have close dimensional tolerances and are generally ready for use.

NOTE 2 Sintering involves the thermal treatment of a powder or compact at a temperature below the melting point of the principal constituent with the object of increasing its strength.

3.5.4.3
full density products
products manufactured from powder by joint use of temperature and pressure (hot isostatic compression, extrusion, etc.)

20) See **B.1.9**.

Annex A
(normative)
Steel products and associated standards

This annex identifies the corresponding European Standards for the steel products defined in this European Standard, which specify dimensions and tolerances.

Table A.1 — Corresponding European Standards

Clause	Steel product	European standard
3.1	Liquid steel	
3.2.1	Ingots	
3.2.2.1	Semi-finished products of square cross section	
3.2.2.2	Semi-finished products of rectangular cross section	
3.2.2.3	Flat semi-finished products	
3.2.2.4	Round semi-finished products	
3.2.2.5	Blanks for sections	
3.3.2.1	Hot rolled uncoated flat products	
3.3.2.1.1	Wide flats	EURONORM 91
3.3.2.1.2	Plate and sheet	EN 10029
3.3.2.1.3	Strip	EN 10051:1991 +A1:1997 EN 10048
3.3.2.2	Cold rolled uncoated flat products	
3.3.2.2.1	Plate and sheet	EN 10131
3.3.2.2.2	Strip Narrow Strip	EN 10131 EN 10140
3.3.3.1	Non oriented electrical steels	EN 10106 EN 10265 EN 10303 EN 10341
3.3.3.2	Grain oriented electrical steels	EN 10107 EN 10303
3.3.4	Tin mill and allied products for packaging	
3.3.4.1	Blackplate	EN 10205
3.3.4.2	Tinplate	EN 10202
3.3.4.3	Tinned sheet and strip	
3.3.4.4	Electrolytic chromium/chromium oxide coated steel (ECCS)	EN 10202
3.3.5	Coated hot or cold rolled flat products	

3.3.5.1.1	Hot dipped metal coated sheet and strip	EN 10143
3.3.5.1.2	Electrolytically metal coated steel and strip	EN 10131
3.3.5.2	Sheet and strip with organic coating	EN 10169-1
3.3.5.3	Sheet and strip with miscellaneous inorganic coating	
3.3.6	Profiled sheet	
3.3.7	Composite products	
3.4	Long products	
3.4.2	Rod	EN 10017 EN 10108
3.4.3	Wire	EN 10218-2
3.4.4.1	Hot rolled bars	
3.4.4.1.1	Rounds	EN 10060
3.4.4.1.2	Squares, hexagons and octagons	EN 10059 EN 10061
3.4.4.1.3	Flats	EN 10058 EN 10092-1 EN 10092-2
3.4.4.1.4	Bars of special shape	
3.4.4.2	Forged bars	
3.4.4.3	Hollow mining drill bars	
3.4.5	Bright products	EN 10278
3.4.5.1	Drawn products	EN 10278
3.4.5.2	Turned products	EN 10278
3.4.5.3	Ground products	EN 10278
3.4.6	Deformed products for reinforcement and prestressing of concrete	
3.4.6.1	Rod	
3.4.6.2	Wire	EN 10080 prEN 10138-2
3.4.6.3	Bars	EN 10080 prEN 10138-4
3.4.7.1	Railway materials	
3.4.7.2	Piling	
3.4.7.2.1	Sheet piling	EN 10248-2 EN 10249-2
3.4.7.2.2	Fabricated bearing piles	
3.4.7.2.3	Fabricated tubular bearing piles	EN 10210-2 EN 10219-2

3.4.7.3	Mining frame sections	
3.4.7.4.1	I sections (narrow and medium flanges)	EN 10034 EN 10024 EURONORM 19
3.4.7.4.2	H sections (wide flanged beams)	EN 10034 EURONORM 53
3.4.7.4.3	U sections (channels)	EN 10279
3.4.7.4.4	Bearing piles	EN 10034
3.4.7.4.5	Special heavy sections	
3.4.7.5.1	Small U, I and H sections	EURONORM 54
3.4.7.5.2	Angles	EN 10056-1
3.4.7.5.3	T sections with equal flanges	EN 10055
3.4.7.5.4	Bulb flats	EN 10067
3.4.7.5.5	Special sections	
3.4.8	Welded sections	
3.4.9	Cold formed sections	EN 10162
3.4.10.1	Tubes	EN 10220 EN ISO 1127
3.4.10.2	Seamless tubes	EN 39 EN 10208-1 EN 10208–2 EN 10216-1 to 5 EN 10224 EN 10255 EN 10297-1 EN 10297-2 EN 10305-1 EN 10305-4
3.4.10.3	Welded tubes	EN 39 EN 10208-1 EN 10208–2 EN 10217-1 to 7 EN 10224 EN 10255 EN 10296-1 EN 10296-2 EN 10305-2

		EN 10305-3 EN 10305–5 EN 10305-6 EN 10312
3.4.10.4	Hollow sections	EN 10210-2 EN 10219-2
3.4.10.5	Hollow bars	EN 10294-1
3.5.1	Open die forgings	EN 10250-1 EN 10222-1
3.5.2	Closed die forgings and stampings	
3.5.3	Castings	
3.5.4	Powder metallurgy products	

Annex B
(informative)
Notes on the former European Coal and Steel Community (ECSC) definitions and Harmonised Commodity Description and Coding System (HS) definitions

B.1 European Coal and Steel Community (ECSC) definitions

B.1.1 General

The Treaty of Paris, that set up the ECSC, expired in 2002. Coverage of the Treaty was defined in Annex 1 of the Treaty and although it is no longer in force, the definitions of steel and steel products that were included remain in common use.

The reporting obligations imposed by the ECSC have been replaced by the PRODCOM regulation (Council Regulation (EEC) No 3924 of 17 December 1991). The ECSC product definitions have been subsumed within the PRODCOM regulations and are those included in NACE section 2710.

In most cases, the definitions contained within PRODCOM, as specified by The Statistical Office of the European Communities (EUROSTAT) are consistent with EN 10079.

B.1.2 Liquid steel (see 3.1)

Statistical data on liquid steel production is based on the weight of liquid steel ready for pouring that is obtained directly from the melting of raw materials or scrap.

B.1.3 Crude steel (see 3.2)

The previous ECSC definition of crude steel used by PRODCOM covers ingots (see **3.2.1**), continuously cast semi finished products as cast (see **3.2.2**) and liquid steel for the production of castings (see **3.1**). In this European Standard and the PRODCOM data, the sold production of continuously cast semi finished products is defined as a semi-finished product.

B.1.4 Ingots and semi-finished products for seamless tube manufacture

This product description in PRODCOM covers all products supplied for seamless tube manufacture, including cast products, rolled rounds and turned rounds.

B.1.5 Semi finished products (see 3.2)

B.1.5.1 Forged semi-finished products are included as semi finished products in **3.2** of this European Standard, but these products are excluded from the PRODCOM definition of sold production of semi finished products.

B.1.5.2 To avoid double counting, the PRODCOM data for sold production for ingots and semi finished products excludes those that are destined for conversion to other products. In this standard such a distinction is not considered relevant to the products definitions.

B.1.6 Electrical steels, tin mill products, coated flat products (see 3.3.3, 3.3.4, 3.3.5)

B.1.6.1 For electrical steel, only cold reduced products are covered in the PRODCOM statistics.

B.1.6.2 In the PRODCOM statistics, corrugated coated sheets of sinusoidal profile are included with flat coated sheets. In this standard corrugated sheets are considered to be within the definition of profiled sheets.

B.1.7 Merchant bars

This term is still used in some summary statistical questionnaires and covers the following hot rolled long products defined in this European Standard:

— hot rolled bars (see **3.4.4.1**);

— hollow mining drill bars (see **3.4.4.3**);

— angles, T-sections, bulb flats, light and special sections (see **3.4.7.5**).

B.1.8 Clad products

In this European Standard clad products are defined within composite products in **3.3.7 a).** In the PRODCOM statistics, clad products are classified according to the substrate layer that has been clad.

B.1.9 Products obtained by extrusion or ring rolling

In the PRODCOM statistics, hot extruded products are included as hot rolled. On the other hand, products made in ring rolling mills, such as tyres and similar products, are considered to be forged and thereby assessed under a different NACE heading.

B.2 Harmonized Commodity Description and Coding System definitions

B.2.1 General

The Harmonized Commodity Description and Coding System (HS) is a nomenclature for classifying commodities that has been drawn up by the Customs Cooperation Council and implemented by international convention as the basis for regional and national tariff coding systems.

The products defined in this European Standard are classified generally in Chapter 72 and Chapter 73 of the HS.

Definitions in this European Standard are closely aligned with those of the HS but a number of differences exist because:

a) HS encompasses every product in trade and provides headings for processes or further manufactures beyond the scope of this European Standard;

b) HS definitions classify products with more emphasis on shape than on manufacturing process or application;

c) scope of product names and their descriptions may be different.

Clause B.2.2 to clause B.2.8 set out the main differences that remain or have arisen as a result of the adoption of the HS.

B.2.2 Semi finished products (see 3.2)

B.2.2.1 The HS does not set any minimum size limits for the cross-section area or side dimensions for semi finished products, but the definition is restricted to products that have been forged or continuously cast and/or subjected only to primary hot rolling. In this European Standard the products in **3.2.2** are defined by lower size limits without reference to the manufacturing methods, with the exception of round semi finished products (see **3.2.2.4**).

B.2.2.2 The HS groups together semi finished products of circular or polygonal cross-section but does not identify their applications.

B.2.3 Tapered plates (see 3.3.2.1.2)

While EU Customs have ruled that tapered plates rolled in a reversing mill are structures under 73.08 of the HS, in this European Standard they are considered to be within the definition of quarto plates.

B.2.4 Varnished and/or printed tin mill products (see 3.3.4)

Under the HS flat products are classified according to the final coating process. Therefore tin mill products that have been varnished and/or printed are considered to be organic coated products in Customs statistics. In PRODCOM statistics, however, such varnishing or printing is not considered to be a separate production stage. The resulting products are counted as being unchanged from the products defined in **3.3.4** of this European Standard.

B.2.5 Blackplate (see 3.3.4.1)

This product is not identified separately in the HS as it is combined with uncoated flat cold rolled products of similar thicknesses. However in the Combined Nomenclature (the EU Trade Classification systems that is based on the HS) there is a subheading for non alloy cold reduced strip under 0,35 mm thick, which would include and identify the majority of blackplate.

B.2.6 Wire (see 3.4.3)

The HS classifies wire that has been decoiled, straightened and cut to lengths as cold finished bars.

B.2.7 Products for reinforcing and prestressing of concrete (see 3.4.6)

The HS identifies separately only hot rolled bars and rods with a ribbed (deformed) surface. In this European Standard the scope of **3.4.6** extends to cold worked bars and wire.

B.2.8 Sheet piling (see 3.4.7.2.1 c)

The HS definition of sheet piling excludes fabricated products without external interlocks and classifies these among the “structures” under heading 73.08 of the HS.

Annex C
(informative)
Trilingual vocabulary

Table C.1 – Trilingual vocabulary

English	French	German	Clause
aluminium/aluminium silicon alloy coated sheet and strip	tôle et bande aluminiée	aluminiertes Blech und Band	**3.3.5.1.1 c)**
aluminium-zinc coated sheet and strip	tôle et bande revêtue d'un alliage d'aluminium-zinc	Blech und Band mit Überzügen aus einer Aluminium-Zink Legierung	**3.3.5.1.1 d)**
angle	cornière	Winkelprofil	**3.4.7.5.2**
bar	barre	Stab	**3.4.4**
bar for grooved springs	barre pour plats rainurés	Federstahl, gerippt	**3.4.4.1.4**
base plate	selle	Unterlage	**3.4.7.1.1.2 h)**
bearing piling	pieu métallique	Fundamentprofil	**3.4.7.2.2** **3.4.7.4.4**
bevel bar	barre biseau	Scherenstab	**3.4.4.1.4**
blackplate	fer noir	Feinstblech	**3.3.4.1**
blank for section	ébauche pour profilés	vorprofiliertes Halbzeug	**3.2.2.5**
boxed piles	pieu caisson	Kastenpfahl	**3.4.7.2.2**
brake rail	rail frein	Bremsschiene	**3.4.7.1.1.2 f)**
bright product	produit "blanc"	Blankstahl	**3.4.5**
broad or very broad flange (H) heavy sections and columns	poutrelle à ailes larges ou très larges (poutrelle H et colonne)	H-Profil (Breitflanschträger einschl. Stützenprofil	**3.4.7.4.2**
bulb flat	plat à boudin	Wulstflachprofil	**3.4.7.5.4**
cast	coulée	Guss	**3.2**
casting	pièce moulée	Gussstück	**3.5.3**
clad sheet and strip	tôle et bande plaquée	plattiertes Blech und Band	**3.3.7 a)**

closed die forging	pièce matricée	Gesenkschmiedestück Pressling	**3.5.2**
coated flat product	produit plat revêtu	Flacherzeugnis mit Oberflächenveredelung	**3.3.5**
coil	bobine (bande)	Rolle	**3.3.2.1.3/3.3.2.2.2**
cold formed product	produit formé à froid	Kaltprofil	**3.4.9**
cold formed section	profil formé à froid	Kaltprofil	**3.4.9**
cold formed sheet piling	palplanche formé à froid	Kaltgeformte Spundbohlen	**3.4.7.2.1 f)**
cold rolled flat product	produit plat laminé à froid	kaltgewalztes Flacherzeugnis	**3.3.2.2**
cold rolled narrow strip	feuillard à froid	Kaltband	**3.3.2.2.2 c)**
cold rolled plate or sheet	tôle laminée à froid	kaltgewalztes Blech	**3.3.2.2.1**
cold rolled strip	bande à froid	Kaltband, kaltgewalztes Band	**3.3.2.2.2**
cold rolled strip in cut lengths	feuillard coupé a longuer	Kaltband in Stäben	**3.3.2.2.2**
cold rolled wide strip	large bande à froid	Kaltbreitband	**3.3.2.2.2 a)**
column	colonne	Stützenprofil	**3.4.7.4.2**
composite product	produit composite	zusammengesetztes Erzeugnis	**3.3.7**
conductor rail	rail conducteur de courant	Stromschiene	**3.4.7.1.1.2 c)**
continuous casting	coulée continue	Strangguss	**3.2.2**
corrugated sheet	tôle ondulée	Wellblech	**3.3.6 a)**
crane rail	rail pour appareil de levage	Kranschiene	**3.4.7.1.2 a)**
deformed products for reinforcement and prestressing of concrete	produit crénelé ou nervure	gerippter und profilierter Beton- oder Spannstahl	**3.4.6**
drawn product	produit étiré	gezogener Blankstahl	**3.4.5.1**
electrical steel	acier magnétique	Elektroblech und -band	**3.3.3**
electrolytic chromium/chromium	fer chromé (dit	spezialverchromtes Blech und	**3.3.4.4**

oxide coated steel (ECCS)	ECCS)	Band (ECCS)	
electrolytically zinc-coated sheet and strip	tôle électrozinguée	elektrolytisch verzinktes Blech und Band	**3.3.5.1.2.2**
fabricated bearing piling	pieu métallique fabriqué	zusammengesetzter Kastenpfahl	**3.4.7.2.2**
fabricated sheet piling	palplanche de raccord	Konstruktionsbohle	**3.4.7.2.1 c)**
fish-plate	éclisse	Lasche	**3.4.7.1.1.2 g)**
flat	plat	Flachstab	**3.4.4.1.3**
flat product	produit plat	Flacherzeugnis	**3.3**
flat semi finished product	demi-produit plat	flaches Halbzeug	**3.2.2.3**
flat sheet piling	palplanche plate	Flachprofile	**3.4.7.2.1 b)**
forged bar	barre forgée	geschmiedeter Stab	**3.4.4.2**
forged product (open die)	produit forge (à frappe libre)	Freiformschmiedestück	**3.5.1**
full density product	piece pleine densité	Sinterpressteil	**3.5.4.3**
grain oriented electrical steel	acier magnétique à grains orientés	kornorientiertes Elektroblech und -band	**3.3.3.2**
grain oriented flat product	tôle à grains orientés	kornorientiertes Elektroblech und -band	**3.3.3.2**
grooved rail	rail à ornières	Rillenschiene	**3.4.7.1.2 b)**
ground product	produit rectifié	geschliffener Blankstahl	**3.4.5.3**
guide rail	rail guide	Führungsschiene	**3.4.7.1.2 e)**
heavy plate	tôle forte	Grobblech	**3.3.2.1.2**
heavy section	profilé dit poutrelle	große Profile	**3.4.7.4**
hexagon	hexagone	Sechskantstab	**3.4.4.1.2**
hollow bar	barre creuse	Drehteilrohr	**3.4.10.5**
hollow mining drill bar	barre creuse pour fleuret	Hohlbohrstab	**3.4.4.3**
hollow section	profil creux	Hohlprofil	**3.4.10.4**
hot dipped zinc coated sheet, plate	tôle galvanisée	shmelztauchverzinktes Blech	**3.3.5.1.1 b)**

and strip		und Band	
hot finished bar	barre obtenue à chaud	warmgeformter Stab	**3.4.4**
hot formed section	profil laminé à chaud	warmgewalztes Profil	**3.4.7**
hot rolled flat product	produit plat laminé à chaud	warmgewalztes Flacherzeugnis	**3.3**
hot rolled long product	produit long laminé à chaud	warmgewalztes Langerzeugnis	**3.4.2/3.4.4/...**
hot rolled narrow strip	feuillard à chaud	Bandstahl	**3.3.2.1.3 c)**
hot rolled narrow strip in cut lengths	feuillard à chaud coupe à longueur	Bandstahl in Stäben	**3.3.2.1.3 c)**
hot rolled sheet or plate cut from wide strip	tôle à chaud issues de larges bandes	Bandblech	**3.3.2.1.2 b)**
hot rolled strip	bande à chaud	warmgewalztes Band	**3.3.2.1.3**
hot rolled sheet and plate	tôle/feuille laminée à chaud	warmgewalztes Blech	**3.3.2.1.2**
hot rolled wide strip	large bande à chaud	Warmbreitband	**3.3.2.1.3 a)**
I and H heavy sections	poutrelles I et H	I- und H-Profile	**3.4.7.4.1/3.4.7.4.2**
I, H and U heavy sections having unequal or asymmetric flanges	poutrelles I, H et U à ailes inégales ou dissymétriques	I-, H- oder U-Profile mit ungleichen oder unsymmetrischen Flanschen	**3.4.7.4.5**
ingot	lingot	Block, fester Rohstahl	**3.2.1**
ingot casting	coulée en lingotière	Blockguss	**3.2.1**
interlocking H sheet piling	palplanche H	Kastenwand aus H Profilen	**3.4.7.2.1 e)**
lead-tin alloy coated sheet and strip	tôle et bande plombée	Temblech und Temband	**3.3.5.1.2.1**
liquid steel	acier liquide	flüssiger Stahl	**3.1**
liquid steel for castings	acier liquide pour pièces moulées	flüssiger Stahl für Stahlguss	**3.1**
liquid steel for ingot casting or continuous casting	acier liquide pour coulée en lingotière ou coulée continue	flüssiger Stahl für Block- oder Strangguss	**3.1**

long product	produit long	Langerzeugnis	**3.4**
mining frame section	profilé pour soutènement de mines	Grubenausbauprofil	**3.4.7.3**
narrow and medium flange heavy (I) section	poutrelle à ailes étroites et moyennes (poutrelle I)	I- Profil mit schmalen oder mittelbreiten Flanschen	**3.4.7.4.1**
non oriented grain electrical steel	acier magnétique à grains non orientés	nicht kornorientiertes Elektroblech und -band	**3.3.3.1**
octagon	octogone	Achtkantstab	**3.4.4.1.2**
open die forging	pièce forgée (à frappe libre)	Freiformschmiedestück	**3.5.1**
parallel flanged section	profilé à “ailes parallèles”	parallelflanschiges I- und H-Profil	**3.4.7.4 d)**
parent section	profil mère	Mutterprofil	**3.4.7.4 NOTE 2 a)**
plate and sheet	feuille/tôle	Blech	**3.3.2.1.2/3.3.2.2.1**
prestressing of concrete steel	acier pour béton précontraint	Spannbetonstahl	**3.4.6**
profiled sheet	tôle profilée	profiliertes Blech	**3.3.6**
quarto plate	tôle quarto	Quartoblech	**3.3.2.1.2 NOTE**
rail	rail	Schiene	**3.4.7.1**
railway track products	matériel de voies ferrées	Gleisoberbauerzeugnis	**3.4.7.1.1**
reinforcing bar	acier à béton	Betonstahl	**3.4.6**
ribbed sheet	tôle nervurée	geripptes Blech	**3.3.6 b)**
rod	fil machine	Walzdraht	**3.4.2**
rolled bar	barre laminée	gewalzter Vollstab	**3.4.4.1**
round	rond	Rundstab	**3.4.4.1.1**
round semi finished products	demi-produits ronds	rundes Halbzeug	**3.2.2.4**
sandwich panel	panneau sandwich	Sandwichelement	**3.3.7 c)**
sandwich sheet	tôle sandwich	Sandwichblech	**3.3.7 b)**
seamless tube	tube sans soudure	nahtloses Rohr	**3.4.10.2**

semi finished product	demi-produit	Halbzeug	**3.2.2**
semi-finished product of rectangular cross-section	demi-produit de section rectangulaire	rechteckiges Halbzeug	**3.2.2.2**
semi-finished product of square cross-section	demi-produit de section carrée	quadratisches Halbzeug	**3.2.2.1**
semi round bar	barre demi-rond	Halbrundstab	**3.4.4.1.4**
sheet	feuille/tôle	Feinblech, Blech	**3.3.2.1.2, 3.3.2.2.1**
sheet and strip with inorganic coating	tôle et bande à revêtement non organique	Blech und Band mit anorganischer Beschichtung	**3.3.5.3**
sheet and strip with metal coating	tôle et bande à revêtement métallique	Blech und Band mit metallischem Überzug	**3.3.5.1**
sheet and strip with organic coating	tôle et bande à revêtement organique	Blech und Band mit organischer Beschichtung	**3.3.5.2**
sheet piling	palplanche	Spundbohle	**3.4.7.2.1**
sheet/plate	tôle/feuille	Blech	**3.3.2.2**
sintered steel component	pièce frittée	Sinterformteil	**3.5.4.2**
slab ingot	lingot dit plat	Bramme	**3.2.1**
sleeper	traverse	Schwelle	**3.4.7.1.1.1 b)** **3.4.7.1.1.2 b)**
slit cold rolled wide strip	large bande à froid refendue	längsgeteiltes Kaltbreitband	**3.3.2.2.2 b)**
slit hot rolled wide strip	large bande à chaud refendue	längsgeteiltes Warmbreitband	**3.3.2.1.3 b)**
small I and H sections	petit profilé I et H	kleines I- und H-Profil	**3.4.7.5.1**
small U section (small channel)	petit profilé U	Kleines U-Profil	**3.4.7.5.1**
sole plate	plaque d'appul	Klemmplatte	**3.4.7.1.1.2 h)**
special bar	barre spéciale	Spezialstab	**3.4.4.1.4**
special heavy section	poutrelle spéciale	große Sonderprofile	**3.4.7.4.5**

special section	profilé spécial	Sonderprofile	**3.4.7.5.5**
square	carré	Vierkantstab	**3.4.4.1.2**
square edged, L, U and T sections	profils L, U, T à angles vifs	scharfkantige L-, U-, und T-Profile	**3.4.7.5.5**
stamping	pièce estampée	Gesenkschmiedestück	**3.5.2**
stamping (closed die)	produit estampé	Gesenkschmiedestück	**3.5.2**
steel powder	poudre d'acier	Stahlpulver	**3.5.4.1**
steel for prestressing of concrete	acier pour béton précontraint	Spannbetonstahl	**3.4.6**
strip	bande	Band	**3.3.2.1.3** **3.3.2.2.2**
switch/crossing rail	rail pour aiguille	Weichenschiene, Kreuzungsschiene	**3.4.7.1.1.2 d)**
T with equal flanges	té à ailes égales	gleichschenkliges T-Profil	**3.4.7.5.3**
T with unequal flanges	profil T à ailes inégales	T-Profil mit ungleichen Flanschen	**3.4.7.5.5**
terne plate	fer terne	Ternblech	**3.3.5.1.1 a)**
thick section	profil renforcé	schweres Profil, abgeleitet	**3.4.7.4 NOTE 2c)**
thin section	profil mince ou allégé	leichtes Profil, abgeleitet	**3.4.7.4 NOTE 2b)**
tinned sheet and strip	tôle et bande étamée	verzinntes Blech und Band	**3.3.4.3**
tinplate	fer blanc	Weißblech und -band	**3.3.4.2**
track shoe section	patin de chaine de roulemen	Profil für Raupenketten	**3.4.7.5.5**
trapezoidal bar	barre trapèze	Trapezstab	**3.4.4.1.4**
trench sheeting	palplanche légère de blindage	Kanaldiele	**3.4.7.2.1 f)**
triangle bar	barre triangle	Dreieckstab	**3.4.4.1.4**
tube	tube	Rohr	**3.4.10.1**
tubular fabricated bearing pile	pieu métallique tubulaire	Rohrpfahl	**3.4.7.2.3**
turned product	produit écroûté galeté	geschälter Blankstahl	**3.4.5.2**

U heavy section (channel)	poutrelle U	U-Profil	**3.4.7.4.3**
uncoated flat product	produit plat non revêtu	Flacherzeugnis ohne Oberflächenveredelung	**3.3.2**
U, Z and Ω sheet piling	palplanche U, Z, et Ω	U, Z und Ω Bohlen	**3.4.7.2.1**
vitreous enamelled product	tôle émaillée	emailliertes Blech	**3.3.5.3**
welded section	profilé soudé	geschweißtes Profil	**3.4.8**
welded tube	tube soudé	geschweißtes Rohr	**3.4.10.3**
wide flat	large plat	Breitflachstahl	**3.3.2.1.1**
wire	fil	gezogener Draht	**3.4.3**
Z section	profil Z	Z-Profil	**3.4.7.5.5**
zinc coated sheet and strip	tôle et bande revétue de zinc	verzinktes Blech und Band	**3.3.5.1.1 b)**
zinc-nickel coated sheet and strip	tôle et bande revêtue d'un alliage zinc-nickel	Blech und Band mit Überzügen aus einer Zink-Nickel-Legierung	**3.3.5.1.2.3**

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[7] EURONORM 53:62, Hot-rolled broad flanged I-beams (wide-flanged I-beams) with parallel flange facings.

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