



SLOVENSKI STANDARD
SIST EN 10162:2003
01-november-2003

<`UXbc`j U`Ub]`^_`Yb]`dfcZ]`E`HY b] b]`XcVUj b]`dc[c`^`E`CXg]`cd_]`a Yf`]b`dfYfYncj

Cold rolled steel sections - Technical delivery conditions - Dimensional and cross-sectional tolerances

Kaltprofile aus Stahl - Technische Lieferbedingungen - Grenzabmaße und Formtoleranzen

iTeh STANDARD PREVIEW

Profilés en acier formés a froid - Conditions techniques de livraison - Tolérances dimensionnelles et sur sections transversales

[SIST EN 10162:2003](https://standards.iteh.ai/catalog/standards/sist/585bb06-e8e8-47cc-8931-1c568fd190e3/sist-en-10162-2003)

Ta slovenski standard je istoveten z: **EN 10162:2003**

ICS:

77.140.70 Jekleni profili Steel profiles

SIST EN 10162:2003 en

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN 10162:2003

<https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003>

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 10162

April 2003

ICS 77.140.70

English version

Cold rolled steel sections - Technical delivery conditions - Dimensional and cross-sectional tolerances

Profilés en acier formés à froid - Conditions techniques de
livraison - Tolérances dimensionnelles et sur sections
transversales

Kaltprofile aus Stahl - Technische Lieferbedingungen -
Grenzabmaße und Formtoleranzen

This European Standard was approved by CEN on 21 February 2003.

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 Management Centre 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 Management Centre has the same status as the official versions.

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

[SIST EN 10162:2003](https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003)

<https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003>



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents	page
Foreword.....	4
1 Scope	5
2 Normative references	5
3 Terms and definitions.....	7
4 Designation.....	7
4.1 Designation of cold rolled sections for general applications	7
4.1.1 General.....	7
4.1.2 Section details.....	7
4.1.3 Designation of split tubes	7
4.1.4 Designation examples	9
4.2 Designation of cold rolled sections for special applications.....	9
5 Steel grades.....	9
6 Delivery conditions.....	9
6.1 Supply condition	9
6.2 Edge condition	9
6.3 Lengths	10
6.4 End condition	10
6.5 Delivered quantities	10
7 Requirements	10
7.1 Mechanical and technological properties	10
7.2 Surface condition.....	10
7.3 Nominal dimensions	11
7.3.1 Cross sectional dimensions	11
7.3.2 Internal bending radii	11
7.4 Permitted dimensional and cross-sectional tolerances	11
7.4.1 General.....	11
7.4.2 Thickness.....	11
7.4.3 Cross section	11
7.4.4 Length	12
7.4.5 Straightness	13
7.4.6 Twist.....	13
7.4.7 Concavity, convexity	13
7.5 Mass	14
7.6 Gross-cross-sectional characteristics	14
8 Further processing	14
9 Test requirements.....	14
9.1 Number of test samples	14
9.2 Test procedure	15
9.2.1 Mechanical and technological characteristics	15
9.2.2 Dimensions.....	15
9.2.3 Surface condition.....	15
9.3 Retests	15
9.4 Material test certificates	15
10 Identification, marking.....	15
11 Packing	16
12 Protection of surfaces, storage and transport.....	16
13 Complaints.....	16

14	Ordering information	17
Annex A (normative)	Inside bending radii	18
Annex B (informative)	Further processing	20
Bibliography		21

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[SIST EN 10162:2003](https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003)

<https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003>

Foreword

This document (EN 10162:2003) has been prepared by Technical Committee ECISS /TC 13 "Flat products for cold working - Qualities, dimensions, tolerances and specific tests" the secretariat of which is held by IBN.

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 October 2003, and conflicting national standards shall be withdrawn at the latest by October 2003.

Annex A is normative and annex B is informative.

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

iTeh STANDARD PREVIEW (standards.iteh.ai)

[SIST EN 10162:2003](#)

<https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003>

1 Scope

This European Standard specifies dimensional and cross-sectional tolerances for cold rolled steel sections produced on roll-forming machines.

It applies to cold-rolled sections for general use (standard sections) produced from steels conforming to EN 10025, EN 10142 and EN 10147 and in the form of rectangular L, U, C, Z and Omega cross sections as well as split tubes (see Figures 1 to 6).

It also applies to cold rolled sections for special applications (special sections) produced from steels listed in clause 5 with other radii, tolerances and shapes.

NOTE Examples of special sections are sections for steel-framed buildings, door frames and sections for rolling stock, automobiles and bridge engineering (see Figures 7 and 8).

This European Standard does not apply to drawn, pressed or folded cold formed sections, cold rolled steel piling or sections manufactured on the basis of special standards.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are 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 (including amendments).

ENV 606, *Bar coded transport and handling labels for steel products*

<https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-b397d17a3/sist-en-10162-2003>

EN 10002-1, *Metallic materials - Tensile testing - Part 1: Method of test at ambient temperature*

EN 10020:2000, *Definition and classification of grades of steel*

EN 10021:1993, *General technical delivery requirements for steel and iron products*

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

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

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

EN 10045-1, *Metallic materials - Charpy impact test - Part 1: Test method*

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

EN 10051, *Continuously hot-rolled uncoated plate, sheet and strip of non-alloy and alloy steels - Tolerances on dimensions and shape*

EN 10079:1992, *Definition of steel products*

EN 10088-1, *Stainless steels - Part 1: List of stainless steels*

EN 10088-2, *Stainless steels – Part 2: Technical delivery conditions for sheet / plate and strip for general purposes*

EN 10111, *Continuously hot-rolled low carbon steel sheet and strip for cold forming - Technical delivery conditions*

EN 10113-1, *Hot rolled products in weldable fine grain structural steels - Part 1: General delivery conditions*

EN 10162:2003 (E)

EN 10113-2, *Hot rolled products in weldable fine grain structural steels - Part 2: Delivery conditions for normalized/normalized rolled steels*

EN 10113-3, *Hot rolled products in weldable fine grain structural steels - Part 3: Delivery conditions for thermomechanical rolled steels*

EN 10130, *Cold rolled low carbon steel flat products for cold forming - Technical delivery conditions*

EN 10131, *Cold rolled uncoated low carbon and high yield strength steel flat products for cold forming - Tolerances on dimensions and shape*

EN 10139, *Cold rolled uncoated mild steel narrow strip for cold forming - Technical delivery conditions*

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

EN 10142, *Continuously hot-dip zinc coated low carbon steel strip and sheet for cold forming - Technical delivery conditions*

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

EN 10147, *Continuously hot-dip zinc coated structural steel strip and sheet - Technical delivery conditions*

EN 10152, *Electrolytically zinc coated cold rolled steel flat products - Technical delivery conditions*

EN 10154, *Continuously hot-dip Aluminium-Silicon (AS) coated steel strip and sheet - Technical delivery conditions*

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

ENV 10169-2, *Continuously organic coated (coil coated) steel flat products - Part 2: Products for building exterior applications*

<https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003>

EN 10204:1991, *Metallic products - Types of inspection documents*

EN 10214, *Continuously hot-dip zinc-aluminium (ZA) coated steel strip and sheet - Technical delivery conditions*

EN 10215, *Continuously hot-dip aluminium-zinc (AZ) coated steel strip and sheet - Technical delivery conditions*

EN 10258, *Cold rolled stainless steel and narrow strip and cut lengths – Tolerances on dimensions and shape*

EN 10259, *Cold rolled stainless steel wide strip and plate / sheet – Tolerances on dimensions and shape*

CR 10260, *Designation systems for steel - Additional symbols*

EN 10268, *Cold-rolled flat products made of high yield strength micro-alloyed steels for cold forming - General delivery conditions*

EN ISO 377:1997, *Steel and steel products - Location and preparation of samples and test pieces for mechanical testing (ISO 377:1997)*

EN ISO 14284:2002, *Steel and Iron - Sampling and preparation of samples for the determination of chemical composition (ISO 14284:1996).*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 10020:2000, EN 10021:1993, EN 10079:1992, EN 10204:1991, EN ISO 377:1997, EN ISO 14284:2002 and the following apply:

3.1

cold rolled sections

products of various shapes having a constant cross section over their entire length. They are produced from hot or cold rolled flat products (with or without surface coatings) by purely cold forming without significantly affecting the thickness of the original flat product (e.g. by cold rolling, drawing, pressing, pressbreaking)

3.2

split tube

cold rolled steel section which is not produced from a tube

4 Designation

4.1 Designation of cold rolled sections for general applications

4.1.1 General

Standard sections shall be designated in accordance with 4.1.2 and 4.1.3.

NOTE The designation of standard sections does not require drawings.

[SIST EN 10162:2003](https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003)

4.1.2 Section details <https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003>

For a complete designation of rectangular cold rolled sections the following details shall be given in the indicated sequence (see Figures 1 to 6):

- a) description of the form of the section (e.g. L, U, C, Z, Omega or split tube);
- b) all side lengths in chain (outer dimensions see Figures 1 to 6). In case the width of flanges or lips of a section are unequal the larger one shall be stated first. For split tubes, see 4.1.3;
- c) wall thickness in mm (separated from the side dimensions by a multiplication sign x);
- d) ID letters for the required edge, (NK = mill edge, GK = sheared edge; see also 6.2);
- e) length description (standard, fixed or exact lengths) ;
- f) length in mm when fixed or exact lengths of section are to be supplied (see 6.3 and 7.4.3);
- g) number of the present standard EN 10162;
- h) designation of the steel grade or the steel number (see clause 5);
- i) number of the European Standard which covers the steel grade under h).

4.1.3 Designation of split tubes

In the case of split tubes dimension of height and width shall be stated only once (see example in 4.1.4 d).

NOTE This assumes that the gap is in the middle of a narrow side and the width of the gap does not exceed $1 \times t$ (t = wall thickness). Details of the designation of other split tubes are given in 4.2.

Dimensions in millimetres

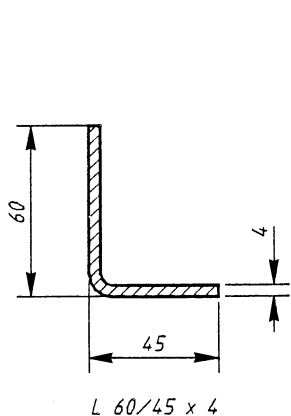


Figure 1

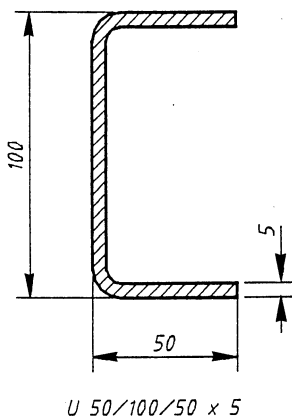


Figure 2

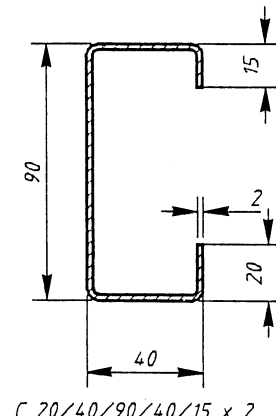


Figure 3

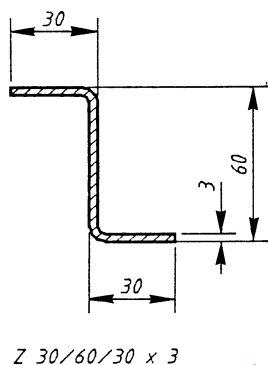


Figure 4

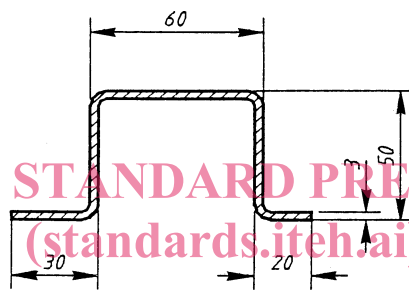


Figure 5

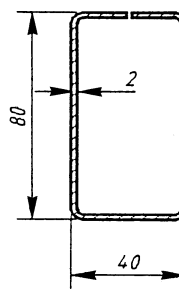


Figure 6

iTeh STANDARD PREVIEW
(standards.iteh.ai)
SIST EN 10162:2003
<https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8951-1c3681d190e3/sist-en-10162-2003>

Figures 1 to 6: Examples of cold rolled steel sections and their designations

Dimensions in millimetres

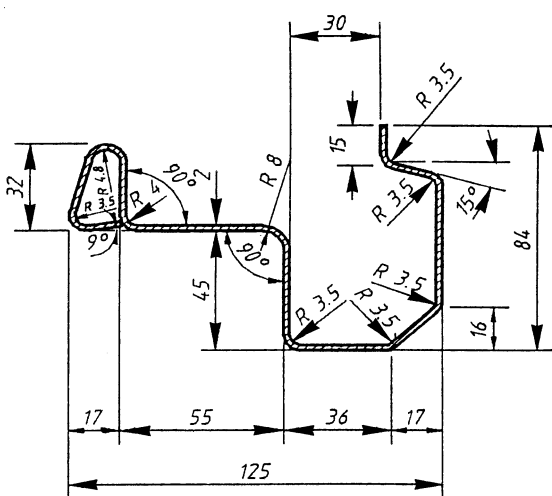


Figure 7

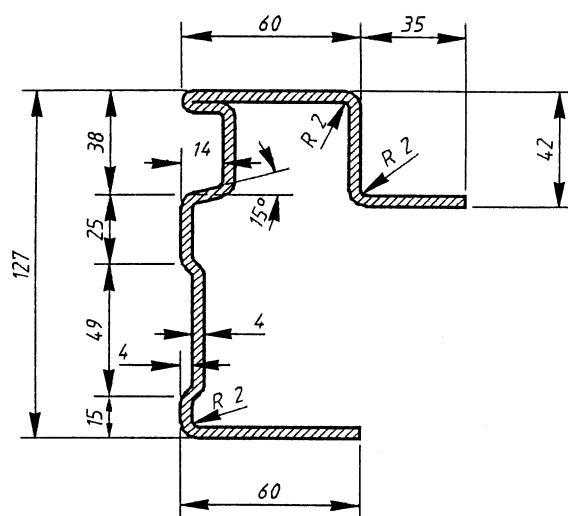


Figure 8

Figures 7 and 8: Examples of cold rolled steel sections for special applications

4.1.4 Designation examples

Designations shall be made as follows:

- a) channel section (U section) as per Figure 2 supplied in standard length and manufactured from S235JRG2 (1.0038) steel conforming to EN 10025:

U 50/100/50 x 5 standard length EN 10162 S235JRG2 (1.0038) EN 10025

- b) C section as show in Figure 3 with sheared edges, supplied in exact lengths of 3500 mm, manufactured from steel DC03 A (1.0347) conforming to EN 10130:

C 20/40/90/40/15 x 2 GK x exact length 3 500 EN 10162 DC03 A (1.0347) EN 10130

- c) 'Omega' section as per Figure 5 with sheared edges, supplied in standard lengths, manufactured from galvanised steel DX52D + Z (1.0350) Z100 MB-C conforming to EN 10142:

'Omega' 30/50/60/50/20 x 3 GK standard length EN 10162 DXD52D + Z (1.0350) Z100 MB-C EN 10142

- d) split tube as show in Figure 6 supplied in a fixed length of 7 300 mm, manufactured from galvanised steel S250 GD + Z (1.0242) Z275 NA-0 conforming to EN 10147:

Split tube 80/40 x 2 x fixed length 7 300 EN 10162 S250GD + Z (1.0242) Z 275 NA- 0 EN 10147

4.2 Designation of cold rolled sections for special applications

The designation of cold rolled steel sections for special applications shall be made with a drawing giving the required shapes, dimensions and cross-sectional and dimensional tolerances.

[SIST EN 10162:2003](https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003)

5 Steel grades

<https://standards.iteh.ai/catalog/standards/sist/5f85bb06-e8e8-47cc-8931-1c3681d190e3/sist-en-10162-2003>

5.1 Unless otherwise agreed at the time of ordering, cold rolled sections shall be manufactured from hot or cold rolled flat steel products in accordance with the following standards:

EN 10025, EN 10088-2, EN 10111, EN 10113-1, EN 10113-2, EN 10113-3, EN 10130, EN 10139, EN 10142, EN 10147, EN 10152, EN 10154, EN 10268, EN 10214, EN 10215, EN 10169-1, ENV 10169-2.

5.2 The required steel grade shall be stated in the designation (see clauses 4 and 14).

6 Delivery conditions

6.1 Supply condition

Unless otherwise agreed, cold rolled sections shall be delivered in the condition in which they left the cold rolling machine.

6.2 Edge condition

Unless otherwise agreed, cold rolled sections shall be supplied with either sheared edges, in which case a slight burr is permitted, or with mill edges according to the manufacturer's choice. Where other edges are agreed, the letters NK (mill edge) or GK (sheared edge) shall be stated in the designation (see 4.1).

Other edges (e.g. rounded or chamfered) shall be specially agreed.