SLOVENSKI STANDARD
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Izvedba jeklenih in aluminijastih konstrukcij - 4. del: Tehnične zahteve za hladno oblikovane konstrukcijske jeklene elemente in hladno oblikovane konstrukcijske elemente za strešne, stropne, talne in stenske konstrukcije

Execution of steel structures and aluminium structures - Part 4: Technical requirements for cold-formed structural steel elements and cold-formed structures for roof, ceiling, floor and wall applications

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Exécution des structures en acier et des structures en aluminium - Partie 4 : Exigences techniques pour éléments et structures en acier formés à froid pour applications en toiture, plafond, paroi verticale et plancher

Ta slovenski standard je istoveten z: **EN 1090-4:2018**

ICS:

91.080.13	Jeklene konstrukcije	Steel structures
91.080.17	Aluminijaste konstrukcije	Aluminium structures

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Exécution des structures en acier et des structures en aluminium - Partie 4 : Exigences techniques pour éléments et structures en acier formés à froid pour applications en toiture, plafond, paroi verticale et plancher

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European foreword

This document (EN 1090-4:2018) has been prepared by Technical Committee CEN/TC 135 “Execution of steel structures and aluminium structures”, the secretariat of which is held by SN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2019, and conflicting national standards shall be withdrawn at the latest by January 2019.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document is part of the EN 1090 series, which comprises the following parts:

— EN 1090-1, *Execution of steel structures and aluminium structures - Part 1: Assessment and verification of constancy of performance for structural components*

— EN 1090-2, *Execution of steel structures and aluminium structures - Part 2: Technical requirements for steel structures*

— EN 1090-3, *Execution of steel structures and aluminium structures - Part 3: Technical requirements for aluminium structures*

— EN 1090-4, *Execution of steel structures and aluminium structures - Part 4: Technical requirements for cold-formed structural steel elements and cold-formed structures for roof, ceiling, floor and wall applications*

— EN 1090-5, *Execution of steel structures and aluminium structures - Part 5: Technical requirements for cold-formed structural aluminium elements and cold-formed structures for roof, ceiling, floor and wall applications*

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SIST EN 1090-4:2018

1 Scope

This European Standard specifies requirements for the execution, i.e. the manufacture and the installation, of cold-formed structural steel members and sheeting and cold-formed structures for roof, ceiling, floor, wall and cladding applications.

This European Standard applies to structures designed according to the EN 1993 series.

This European Standard applies to structural members and sheeting to be designed according to EN 1993-1-3.

This European Standard may be used for structures designed according to other design rules provided that conditions for execution comply with them and any necessary additional requirements are specified.

This European Standard also specifies requirements for the execution i.e. the manufacture and the installation of structures made from cold formed profiled sheeting for roof, ceiling, floor and wall applications under predominately static loading or seismic loading conditions and their documentation.

This European Standard covers sheeting of structural classes I and II according to EN 1993-1-3 used in structures.

This European Standard covers structural members of all structural classes according to EN 1993-1-3.

Structural sheeting are understood here to be:

— profiled sheet, such as trapezoidal, sinusoidal or liner trays (Figure 1), or

Structural members are understood here to be:

— members (linear profiled cross sections) that are produced by cold forming (Figure 2).

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This European Standard also covers:

— not welded built-up sections (Figure 2b and 2c);

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— cold-formed hollow sections including the welding of the longitudinal seam, not covered by EN 10219-1;

— perforated, punctured and micro profiled sheeting and members;

NOTE 1 Welded built-up sections, are not covered, the execution provisions are given in EN 1090–2.

This European Standard also covers spacer constructions between the outer and inner or upper and lower skins for roofs, walls and ceilings made from cold-formed profiled sheeting and the connections and attachments of the afore mentioned elements as long as all are involved in load transfer.

This European Standard covers steel profiled sheeting for composite floors, e.g. during installation and in stage of pouring concrete.

Composite structural members where the interaction between dissimilar materials are an integral part of the structural behaviour such as sandwich panels and composite floors are not covered by this standard.

This European Standard does not cover the necessary analyses and detailing and execution rules for thermal insulation, moisture protection, noise control and fire protection.

This European Standard does not cover regulations of roof cladding and wall cladding, produced by traditional plumber methods or tinsmith methods.

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Annex B of this standard concerns provisions which are not yet included in EN 1993-1-3. The guidelines in this annex may be wholly or partially superseded by future guidelines added to EN 1993.

This European Standard does not cover detailed requirements for water tightness or air permeability resistance and thermal aspects of sheeting.

NOTE 2 The structures covered in this standard can be for example

— single- or multi-skin roofs, whereby the load-bearing structure (lower skin) or the actual roof covering (upper skin) or both consist of cold-formed structural members and sheeting;

— single- or multi-skin walls whereby the load-bearing structure (inner skin), the actual cladding (outer skin) or both consist of cold-formed structural members and sheeting, or

— trusses from cold formed members.

NOTE 3 Structures can consist of an assembly of structural members and sheeting made of steel according to EN 1090–4 and of aluminium according to EN 1090–5.

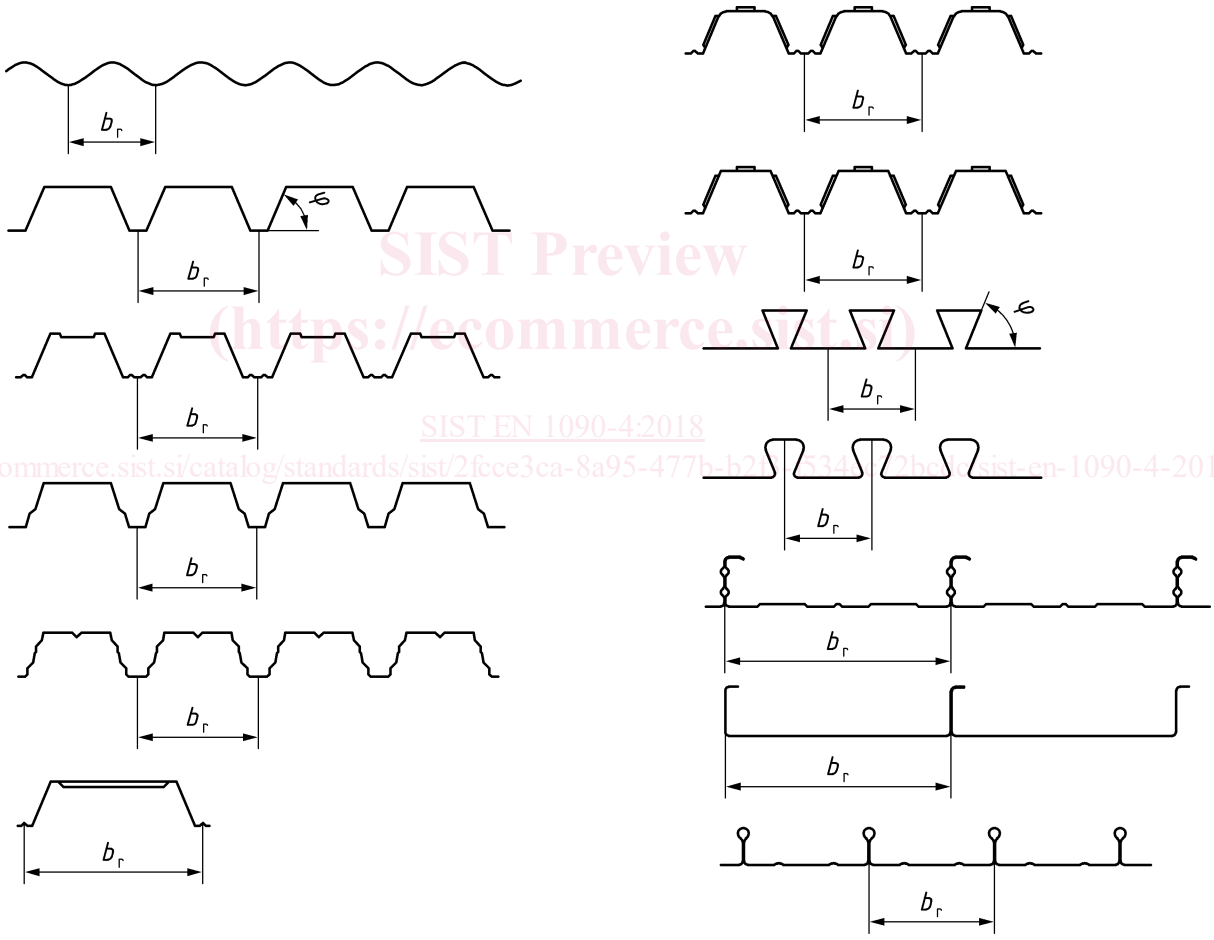
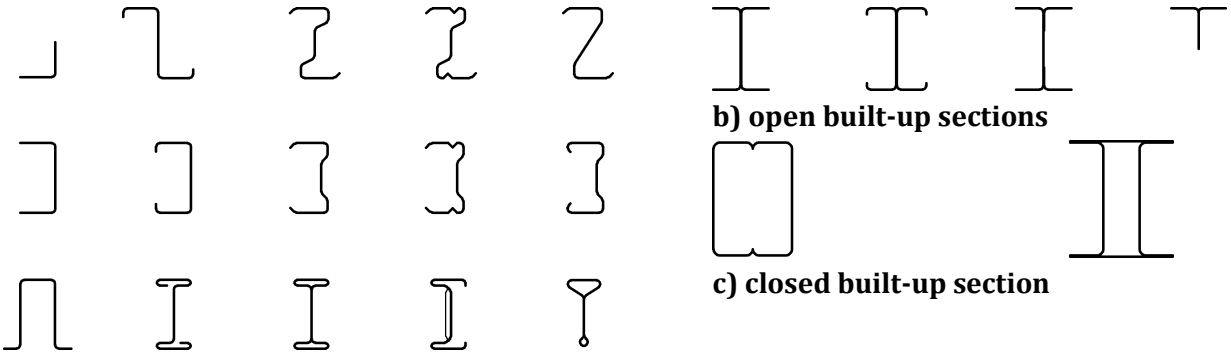


Figure 1 — Examples of profiled sheets

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b) open built-up sections

c) closed built-up section

a) single open cross sections

Figure 2 — Examples of linear profile cross sections

2 Normative references

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

EN 508-1, *Roofing and cladding products from metal sheet — Specification for self-supporting of steel, aluminium or stainless steel sheet — Part 1: Steel*

EN 508-3, *Roofing products from metal sheet — Specification for self-supporting products of steel, aluminium or stainless steel sheet — Part 3: Stainless steel*

EN 1090-1, *Execution of steel structures and aluminium structures — Part 1: Requirements for conformity assessment of structural elements*

EN 1090-2:2008+A1:2011, *Execution of steel structures and aluminium structures — Part 2: Technical requirements for steel structures*

EN 1991 (all parts), *Eurocode 1: Actions on structures — Part 1-1: General actions — Densities, self-weight, imposed loads for buildings*

EN 1993–1-1:2005, *Eurocode 3: Design of steel structures — Part 1-1: General rules and rules for buildings*

EN 1993-1-3:2006, *Eurocode 3 — Design of steel structures — Part 1-3: General rules — Supplementary rules for cold-formed members and sheeting*

EN 1993-1-4:2006, *Eurocode 3 — Design of steel structures — Part 1-4: General rules — Supplementary rules for stainless steels*

EN 1995-1-1, *Eurocode 5: Design of timber structures — Part 1-1: General — Common rules and rules for buildings*

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

EN 10152, *Electrolytically zinc coated cold rolled steel flat products for cold forming — Technical delivery conditions*

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EN 10162:2003, *Cold rolled steel sections — Technical delivery conditions — Dimensional and cross-sectional tolerances*

EN 10169:2010+A1:2012, *Continuously organic coated (coil coated) steel flat products — Technical delivery conditions*

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

EN 10346, *Continuously hot-dip coated steel flat products for cold forming — Technical delivery conditions*

EN 13523-1, *Coil coated metals — Test methods — Part 1: Film thickness*

EN 13523-6, *Coil coated metals — Test methods — Part 6: Adhesion after indentation (cupping test)*

EN 13523-7:2014, *Coil coated metals — Test methods — Part 7: Resistance to cracking on bending (T-bend test)*

EN 13523-8, *Coil coated metals — Test methods — Part 8: Resistance to salt spray (fog)*

EN 13523-10, *Coil coated metals — Test methods — Part 10: Resistance to fluorescent UV radiation and water condensation*

EN 13523-19, *Coil coated metals — Test methods — Part 19: Panel design and method of atmospheric exposure testing*

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EN 13523-21, *Coil coated metals — Test methods — Part 21: Evaluation of outdoor exposed panels*

EN 13523-26, *Coil coated metals — Test methods — Part 26: Resistance to condensation of water*

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EN 62305-3, *Protection against lightning — Part 3: Physical damage to structures and life hazard (IEC 62305-3)*

EN 62561-1, *Lightning Protection System Components (LPSC) — Part 1: Requirements for connection components (IEC 62561-1)*

EN ISO 717-1, *Acoustics — Rating of sound insulation in buildings and of building elements — Part 1: Airborne sound insulation (ISO 717-1)*

EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods (ISO 1461)*

EN ISO 2081, *Metallic and other inorganic coatings — Electroplated coatings of zinc with supplementary treatments on iron or steel (ISO 2081)*

EN ISO 2409, *Paints and varnishes — Cross-cut test (ISO 2409)*

EN ISO 2808, *Paints and varnishes — Determination of film thickness (ISO 2808)*

EN ISO 2810, *Paints and varnishes — Natural weathering of coatings — Exposure and assessment (ISO 2810)*

EN ISO 3452-1, *Non-destructive testing — Penetrant testing — Part 1: General principles (ISO 3452-1)*

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EN ISO 3834 (all parts), *Quality requirements for fusion welding of metallic materials (ISO 3834)*

EN ISO 4042, *Fasteners — Electroplated coatings (ISO 4042)*

EN ISO 4136, *Destructive tests on welds in metallic materials — Transverse tensile test (ISO 4136)*

EN ISO 5173, *Destructive tests on welds in metallic materials — Bend tests (ISO 5173)*

EN ISO 6270-1, *Paints and varnishes — Determination of resistance to humidity — Part 1: Continuous condensation (ISO 6270-1)*

EN ISO 6507 (all parts), *Metallic materials — Vickers hardness test — Part 1: Test method (ISO 6507)*

EN ISO 8492, *Metallic materials —Tube — Flattening test (ISO 8492)*

EN ISO 8493, *Metallic materials — Tube — Drift-expanding test (ISO 8493)*

EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227)*

EN ISO 9712, *Non-destructive testing — Qualification and certification of NDT personnel (ISO 9712)*

EN ISO 11654, *Acoustics — Sound absorbers for use in buildings — Rating of sound absorption (ISO 11654)*

EN ISO 12944-2, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 2: Classification of environments (ISO 12944-2)*

EN ISO 12944-4, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 4: Types of surface and surface preparation (ISO 12944-4)*

EN ISO 12944-6, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 6: Laboratory performance test methods (ISO 12944-6)*

EN ISO 12944-7, *Paints and varnishes — Corrosion protection of steel structures by protective paint systems — Part 7: Execution and supervision of paint work (ISO 12944-7)*

EN ISO 14554 (all parts), *Quality requirements for welding — Resistance welding of metallic (ISO 14554)*

EN ISO 14713 (all parts), *Zinc coatings — Guidelines and recommendations for the protection against corrosion of iron and steel in structures (ISO 14713)*

EN ISO 14731, *Welding coordination — Tasks and responsibilities (ISO 14731)*

EN ISO 14732, *Welding personnel — Qualification testing of welding operators and weld setters for mechanized and automatic welding of metallic materials (ISO 14732)*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials — General rules (ISO 15607)*

EN ISO 17639, *Destructive tests on welds in metallic materials — Macroscopic and microscopic examination of welds (ISO 17639)*

EN ISO 17872:2007, *Paints and varnishes — Guidelines for the introduction of scribe marks through coatings on metallic panels for corrosion testing (ISO 17872:2007)*

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3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

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

3.1.1
component I
component (usually the profile sheet) that is facing the head of the fastener (the swage head in the case of blind rivets)

3.1.2
component II
second component of a connection (usually the supporting member)

3.1.3
decking
load bearing sheet to support

EXAMPLE E.g. insulation and outer skin.

3.1.4
decking edge trim
fold added to the free end of an outstand plane element to restrain that element for local buckling and to ensure the geometry under access loads

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3.1.5
edge trim
load-bearing flashings around a perimeter of a composite steel deck to retain the wet concrete during casting

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3.1.6
fastening
fastener and the process of fastening and the final connected components

3.1.7
flashing
non-load bearing element, for example accessories and coverings in the areas of the skirting, eaves, gable end, ridge and corners

3.1.8
layout drawings
drawings which are showing the position of structural members and execution details

3.1.9
liner tray
profiled sheet with large lipped edge stiffener, suitable for interlocking with adjacent liner trays to form a plane of ribbed sheeting that is capable of supporting a parallel plane of profiled sheeting

3.1.10
penetration
opening in the decking made on-site ugh