



# SLOVENSKI STANDARD SIST EN 12063:2024

01-julij-2024

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**Izvedba posebnih geotehničnih del - Zagatne stene, kombinirane zagatne stene, visoke modularne stene**

Execution of special geotechnical work - Sheet pile walls, combined pile walls, high modulus walls

Ausführung von Arbeiten im Spezialtiefbau - Spundwandkonstruktionen

Exécution des travaux géotechniques spéciaux - Rideaux de palplanches, rideaux mixtes, rideaux à forte inertie

**Ta slovenski standard je istoveten z: EN 12063:2024**

[SIST EN 12063:2024](https://standards.iteh.ai/standards/sist/0625c936-5df7-4914-bed1-584402229ecc/sist-en-12063-2024)

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## Execution of special geotechnical work - Sheet pile walls, combined pile walls, high modulus walls

Exécution des travaux géotechniques spéciaux -  
Rideaux de palplanches, rideaux mixtes, rideaux à forte  
inertie

Ausführung von Arbeiten im Spezialtiefbau -  
Spundwandkonstruktionen

This European Standard was approved by CEN on 15 April 2024.

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## European foreword

This document (EN 12063:2024) has been prepared by Technical Committee CEN/TC 288 “Execution of special geotechnical works”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by November 2024, and conflicting national standards shall be withdrawn at the latest by November 2024.

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 supersedes EN 12063:1999.

The general scope of TC 288 is the standardization of the execution procedures for geotechnical works (including testing and control methods) and of the required material properties. WG19 has been charged to revise EN 12063:1999, with the subject area of sheet pile walls.

In comparison with the previous edition EN 12063:1999, the following technical modifications have been made:

- the document has been technically revised;
- normative reference has been updated;
- all figures have been revised;
- combined pile walls, high modulus walls, synthetic sheet pile walls, precast concrete sheet pile walls and timber sheet pile walls have been added in the scope;
- execution classes have been introduced in the document;
- five new annexes were added: [SIST EN 12063:2024](https://standards.iteh.ai/catalog/standards/sist/0625c936-5df7-4914-bed1-584402229ecc/sist-en-12063-2024)
  - Annex G, Additional tolerance for tubular piles;
  - Annex H, Ground movement due to installation;
  - Annex I, Precast concrete sheet piles and capping beams;
  - Annex J, Synthetic sheet piles;
  - Annex K, Percussive drilling as installation method for tubular piles.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

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

**EN 12063:2024 (E)****1 Scope**

This document specifies requirements, recommendations and information concerning the execution of permanent or temporary sheet pile walls, combined pile walls, high modulus wall structures and the handling of equipment and materials.

This document does not give requirements and recommendations for the installation of specific parts of the structure such as ground anchorages, displacement piles and micropiles which are covered by other documents.

This document is applicable to steel sheet pile walls, combined walls, high modulus walls, synthetic sheet pile walls (composite), precast concrete sheet pile walls and timber sheet pile walls. Tubular piles included in combined walls and high modulus walls can be filled with concrete.

Composite structures such as Berliner walls and sheet pile walls in combination with shotcrete, are not covered by this document.

**2 Normative references**

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 1090-2, *Execution of steel structures and aluminium structures - Part 2: Technical requirements for steel structures*

EN 1537, *Execution of special geotechnical works - Ground anchors*

EN 1992 (all parts), *Eurocodes 2: Design of concrete structures*

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

EN 1993-5, *Eurocode 3 - Design of steel structures - Part 5: Piling*

EN 1997 (all parts), *Eurocode 7: Geotechnical design*

<https://standards.iteh.ai/catalog/standards/sist/0625e936-5df7-4914-bed1-584402229ecc/sist-en-12063-2024>

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

EN 10079, *Definition of steel products*

EN 10219-1, *Cold formed welded structural hollow sections of non-alloy and fine grain steels - Part 1: Technical delivery conditions*

EN 10219-2, *Cold formed welded steel structural hollow sections - Part 2: Tolerances, dimensions and sectional properties*

EN 10248-1, *Hot-rolled steel sheet piles - Part 1: Technical delivery conditions*

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

EN 10249-1, *Cold formed sheet piling of non alloy steels - Part 1: Technical delivery conditions*

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

EN 12699, *Execution of special geotechnical works - Displacement piles*



EN 14199, *Execution of special geotechnical works - Micropiles*

EN 15804, *Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products*

EN 16228-1, *Drilling and foundation equipment - Safety - Part 1: Common requirements*

EN 16228-2, *Drilling and foundation equipment - Safety - Part 2: Mobile drill rigs for civil and geotechnical engineering, quarrying and mining*

EN 16228-4, *Drilling and foundation equipment - Safety - Part 4: Foundation equipment*

EN 16228-6, *Drilling and foundation equipment - Safety - Part 6: Jetting, grouting and injection equipment*

EN 16228-7, *Drilling and foundation equipment - Safety - Part 7: Interchangeable auxiliary equipment*

EN ISO 3834-3, *Quality requirements for fusion welding of metallic materials - Part 3: Standard quality requirements (ISO 3834-3:2021)*

EN ISO 3834-4, *Quality requirements for fusion welding of metallic materials - Part 4: Elementary quality requirements (ISO 3834-4:2021)*

EN ISO 5817, *Welding - Fusion-welded joints in steel, nickel, titanium and their alloys (beam welding excluded) - Quality levels for imperfections (ISO 5817:2023)*

EN ISO 9606-1, *Qualification testing of welders - Fusion welding - Part 1: Steels (ISO 9606-1:2012 including Cor 1:2012 and Cor 2:2013)*

EN ISO 9692-1, *Welding and allied processes - Types of joint preparation - Part 1: Manual metal arc welding, gas-shielded metal arc welding, gas welding, TIG welding and beam welding of steels (ISO 9692-1:2013)*

EN ISO 9692-2, *Welding and allied processes - Joint preparation - Part 2: Submerged arc welding of steels (ISO 9692-2:2024)*

EN ISO 15607, *Specification and qualification of welding procedures for metallic materials - General rules (ISO 15607:2019)*

EN ISO 15609-1, *Specification and qualification of welding procedures for metallic materials - Welding procedure specification - Part 1: Arc welding (ISO 15609-1:2019)*

EN ISO 22477 (all parts), *Geotechnical investigation and testing - Testing of geotechnical structures (ISO 22477)*

**EN 12063:2024 (E)****3 Terms and definitions and symbols**

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <https://www.electropedia.org/>
- ISO Online browsing platform: available at <https://www.iso.org/obp>

**3.1 Terms and definitions****3.1.1****anchorage**

anchoring system for the sheet pile wall, for example anchor plates or anchor walls including the connecting rods (tie rods), screw anchors, ground and rock anchors, and drilled anchors with grouted or expanded bodies

Note 1 to entry: Anchors can be pre-stressed (active) or not (passive).

**3.1.2****auxiliary structures**

structure necessary for the proper and safe execution of the sheet piling works, example, a guiding system

**3.1.3****bracing**

system of waling and struts to support the structure

**3.1.4****combined pile wall or  
combined wall**

embedded retaining wall composed of primary and secondary elements

Note 1 to entry: The primary elements are normally steel tubular piles, H piles or box types, spaced uniformly along the length of the wall. The secondary elements are generally steel sheet piles of various types installed in the spaces between the primary elements and connected to them by interlocks (see Figure 1).

**3.1.5****comparable experience**

documented, or other clearly established information related to the ground and installation conditions, involving similar types of soil and rock and for which similar behaviour is expected

Note 1 to entry: Information gained locally is considered to be particularly relevant.

**3.1.6****connector**

hot rolled or fabricated device that connects adjacent piles by means of a thumb and finger or similar configuration to make a continuous wall

Note 1 to entry: Connectors perform the same function as interlocks but are fabricated separately and not as an integral part of the pile.

**3.1.7****crimping**

preventing differential movement of adjacent sheet piles by locally deforming the interlock connection

Note 1 to entry: Used for shear transmission in U-shaped sheet piles and for safe handling.

**3.1.8****cushion**

material, fitted into a recess in the driving cap, which smooths the impact force of the falling hammer on the driving cap and on the head of the sheet pile

**3.1.9****de-clutching**

disconnection of the interlock connection during pile driving

**3.1.10****de-clutching detector**

instrument for determining the integrity of the interlock connection, that is whether adjacent pile interlocks are fully engaged during and/or after installation

**3.1.11****driving**

method, or combination of methods, for installing a pile into the ground to the required depth

Note 1 to entry: See EN 1993-5

EXAMPLE impact, vibrating, pressing, resonance, screwing.

**3.1.12****driving assistance**

method to reduce the penetration resistance during driving

EXAMPLE jetting, pre-drilling, blasting.

**3.1.13****driving cap**

device, placed on the top of the sheet pile which transmits the blow of the hammer evenly, thereby preventing damage of the sheet pile head

Note 1 to entry: See Figure 5.

**3.1.14****driving method**

method of driving such as panel driving, pitch and drive, staggered driving by means of impact, vibration, pressing or by a combination of these

**3.1.15****execution class**

classified set of requirements specified for the execution of the works as a whole, of an individual sheet pile or of a detail of a sheet pile

**EN 12063:2024 (E)****3.1.16****ground release shackle or quick release shackle**

automatic device for safety lifting sheet piles from the ground and placing them in the vertical position

Note 1 to entry: See Annex A and Figure A.8.

**3.1.17****guide frame**

frame consisting of one or more stiff guide beams, normally of steel or wood, to position and maintain the alignment of sheet piles during pitching and driving

**3.1.18****hammer**

part of piling equipment for driving sheet piles by percussion impact

**3.1.19****high modulus wall**

retaining wall formed by interlocking primary steel elements that have the same geometry

Note 1 to entry: The elements can consist of fabricated profiles, see Figure 3 and Figure 4, to obtain a high section modulus.

**3.1.20****interlock connection**

portion of a sheet pile that connects adjacent elements by means of a thumb and finger or similar configuration to make a continuous wall

Note 1 to entry: Interlock connections for steel sheet piles can be described as:

- free: threaded interlocks that are neither crimped nor welded;
- crimped: interlocks of threaded single piles that have been mechanically connected by crimped points to form a shear connection;
- welded: interlocks of threaded single piles that have been mechanically connected by continuous or intermittent partial penetration butt welds to form a shear connection.

**3.1.21****leader**

beam or similar structure, attached to the driving rig, to guide the sheet pile and the hammer (or the vibrator) during driving

Note 1 to entry: See Figure 5, Figure 6 and Figure 7.

**3.1.22****leader slide**

guiding device connecting the drive cap and/or the hammer to the leader

Note 1 to entry: See Figure 5 and Figure 6.

**3.1.23****leading mandrel**

steel template connected to the synthetic or wooden pile to be installed, to guide the alter and to loosen the ground

Note 1 to entry: See Annex J.

**3.1.24****leading system**

whole system to guide the sheet pile and the driving device during driving

Note 1 to entry: See Figure 7.

**3.1.25****mandrel**

steel template enabling the installation process of a synthetic or wooden pile

Note 1 to entry: See Annex J.

**3.1.26****refusal**

lack of ability of a pile to be driven further due to limitations of driving energy, elastic limit of material, or ground conditions

Note 1 to entry: Refusal criteria shall be agreed between parties and shall relate time, energy and penetration move.

**3.1.27****rock dowel**

rod protruding from the toe of the sheet pile, used for fixing sheet piles to the bed-rock

Note 1 to entry: See Figure 30.

**3.1.28****sheet pile press**

leader guided or self-walking device pushing statically the sheet piles into the ground

Note 1 to entry: See Figure 8 and Figure 9.

**3.1.29****sheet pile wall**

line of sheet piles that forms a continuous wall by threading of the interlocks

**3.1.30****sheet pile wall structure**

structure, consisting of sheet piles, ground and rock, anchorages, bracing and/or walings, which retains ground and/or water

Note 1 to entry: The elements are shown in Figure 10.

**3.1.31****site investigation**

investigations on and near site to verify geotechnical conditions, find out existing structures above and below ground and their foundations and possible drivability tests

**EN 12063:2024 (E)****3.1.32****splice plate**

steel plate which joins two lengths of sheet pile together

Note 1 to entry: See Annex B, Figure B.2.

**3.1.33****steel sheet pile**

product obtained by hot rolling or cold forming steel (e.g. drawing, bending, roll forming) 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

**3.1.34****straight web sheet pile**

flat or slightly bend sheet pile section with interlocks, which is mainly working in tension only, generally used in circular or diaphragm cells

Note 1 to entry: See Figure 2.

**3.1.35****strut**

long compression member, usually of steel, wood or reinforced concrete, for the support of the sheet pile walls and normally connected to the walings

Note 1 to entry: It can be pre-stressed.

**3.1.36****synthetic sheet pile**

extruded sheet piles of polymer and fibres

Note 1 to entry: See Annex J.

**3.1.37****template**

specific type of guide frame, used for positioning curved and angled sheet pile walls

Note 1 to entry: They often incorporate a working platform or access staging for piling operators.

**3.1.38****threader**

device fixed to the toe of a sheet pile to guide the sheet pile into the interlock of a sheet pile already placed in the guide frame

Note 1 to entry: See Annex A and Figure A.12.

**3.1.39****travelling mandrel**

steel template with the same geometry as the synthetic or wooden pile to be installed, enabling the installation process

Note 1 to entry: See Figure 27 and Annex J.