



**SLOVENSKI STANDARD**  
**oSIST prEN 17678-2:2022**  
**01-junij-2022**

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**Vgradnja sistemov za naknadno prednapenjanje konstrukcij - 2. del: Ocenjevanje usposobljenosti osebja**

Installation of post-tensioned kits for prestressing of structures – Part 2: Assessment of personnel

Ausführung von Arbeiten von Spannverfahren mit nachträglichem Verbund in Tragwerken - Teil 2: Bewertung der Personalkompetenz

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**ICS:**

03.100.30	Vodenje ljudi	Management of human resources
91.080.40	Betonske konstrukcije	Concrete structures

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
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**DRAFT**  
**prEN 17678-2**

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ICS 03.100.30; 91.080.40

English Version

## Installation of post-tensioned kits for prestressing of structures - Part 2: Assessment of personnel

Mise en œuvre de kits de post-tension pour la précontrainte des structures - Partie 2 : Évaluation du personnel

Ausführung von Arbeiten von Spannverfahren mit nachträglichem Verbund in Tragwerken - Teil 2: Bewertung der Personalkompetenz

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 104.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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## European foreword

This document (prEN 17678-2:2022) has been prepared by Technical Committee CEN/TC 104 “Concrete and related products”, the secretariat of which is held by SN.

This document is currently submitted to the CEN Enquiry.

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**prEN 17678-2:2022 (E)****Introduction**

EN 17678-2 supersedes CEN Workshop Agreement CWA 14646:2003 “*Requirements for the installation of post-tensioning kits for prestressing of structures and qualification of specialist company and its personnel*” as concerns the parts related to assessment of personnel installing PT kits.

CWA 14646 recommended that the training provider should issue certificates attesting the acquired skill of the PT personnel.

To ensure a general acceptance of such certificates, EN 17678-2 describes a procedure in accordance with EN ISO/IEC 17024.

The main motivating factors for creating a European standard on competence of personnel and assessment/ certification of their skills are:

- safety and quality considerations during the installation of the kits;
- safeguarding the integrity of structures during their service life;
- to facilitate free movement of PT personnel, both between PT specialist companies and member states.

EN 17678 consists of two parts:

- Part 1 deals with the minimum requirements to competence personnel dealing with PT installations, and on the tasks the personnel are qualified to undertake;
- Part 2 gives the framework for how to assess the competence of PT personnel and issue certificates to candidates fulfilling the requirements.

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## 1 Scope

This document specifies the scheme for assessment and verification of competence of personnel installing post-tensioning kits.

The document provides provisions for the training providers, assessment bodies and possible certification bodies.

Requirements to the minimum competence and experience for personnel installing post-tensioning kits are given in prEN 17678-1:2021.

This document may be amended with a national annex where indicated in the text.

## 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 ISO/IEC 17024, *Conformity assessment – General requirements for bodies operating certification of persons*

prEN 17678-1:2021,<sup>1</sup> *Installation of post-tensioned kits for prestressing of structures – Part 1: Competence of personnel*

## 3 Terms and definitions

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 <http://www.electropedia.org/>
- ISO Online browsing platform: available at <https://standards.iteh.ai/catalog/standards/sist/35dcfe6a-6086-4425-b7d0-3ae70e97c056/sist-prEN-17678-2-2022>

### 3.1

#### ETA

European Technical Assessment (ETA) for a construction product, a favourable technical assessment of its fitness for an intended use, based on the contribution made by this product to the fulfilment of the seven Essential Requirements, as stated in the Construction Products Regulation (CPR) for the construction works in which the product is installed

Note 1 to entry: ETA's are issued by approved Technical Approval bodies under the guidance of EOTA.

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<sup>1</sup> At draft stage.

**prEN 17678-2:2022 (E)****3.2****post-tensioning kit (PT kit)**

arrangement of tendons and anchorages to carry out post-tensioning

Note 1 to entry: Such a kit, as defined in the relevant ETA may include some or all of the following components:

- *Anchorage*. A mechanical device, usually consisting of several components designed to retain the force in the stressed tendon and to transmit it to the concrete;
- *Bursting reinforcement*. The reinforcement in the anchorage zone to resist transverse tensile forces due to the introduction of prestressing force;
- *Coupler*. A device to join tendons;
- *Duct (sheathing)*. An enclosure in which the prestressing steel is placed and which temporarily or permanently allows relative movement between the prestressing steel and the surrounding concrete;
- *Tendon*. One or a number of prestressing steel elements, i.e. wire, strand, bar.

**3.3****prestressing**

controlled generation of permanent forces and deformations in a structural concrete member to counteract the stresses arising from dead and imposed loads

**3.4****PT supervisor**

expert with special experience in PT site activities, nominated by the PT specialist company

**3.5****PT specialist company**

company responsible for the supply and installation of post-tensioning kits in accordance with the execution specification

**3.6****PT kit manufacturer**

company who manufactures a post-tensioning kit and is holder of the relevant ETA

**3.7****training provider**

organization offering theoretical and practical training to personnel

**3.8****assessment body**

organization responsible for assessing and certifying personnel

**3.9****candidate**

applicant who has fulfilled specific prerequisites and has been admitted to the certification process

[SOURCE: EN ISO/IEC 17024:2009, definition 3.13]



## 4 Competence assessment for certification

### 4.1 Training provider

The training provider shall provide evidence of:

- experience and suitability of the designated trainer(s);
- records shall be retained for trainees to show competence to an appropriate and agreed level;
- records shall be available to show competence of the trainer;
- there should be a system to allow for review of the training provided to ensure continual improvement. Feedback from the trainees should be encouraged and recorded where necessary;
- documentation for use in providing the training shall be issued in a controlled manner;
- external and internal training providers shall show commitment to ensuring the quality of the training centre and the qualifications that are offered, through effective standardization of trainers and internal verification of trainer decisions, keeping up to date with advancement in teaching skills.

Records of competence for all trainers should be available, level of competence should be at least equivalent to a PT supervisor with an appropriate level of experience (level PT2 is required for practical aspects of the training) or an engineer with a construction related degree (or equivalent qualification).

There should be an internal review process which allows for ongoing assessment of the trainer and the training given which includes, but not limited to:

- professional behaviour;
- ethical principals;
- general knowledge of construction and skills;
- specific PT knowledge and skills;
- feedback from trainees.

If records of prior learning are available, these may also be retained as evidence of competence, in line with the requirements of prEN 17678-1:2021, Table 2(NDP).

Trainers shall have the required level of competence for the module and level being taught, with appropriate records available to confirm such competence. Trainers should be of sufficient theoretical and practical competence to train the level of PT personnel according to PT1, PT2 and PT3 as detailed in prEN 17678-1:2021, Table 1.

**prEN 17678-2:2022 (E)****4.2 Assessment body**

The assessment body shall show evidence of approval by an external independent certification body audit against EN ISO/IEC 17024 and possible national vocational requirements.

If the assessment body is part of the same legal entity as the training provider, the impartiality shall be demonstrated according to EN ISO/IEC 17024.

The assessment body shall provide evidence of:

- experience and suitability of the designated assessors relevant to the specialist field of post-tensioning;
- standardization of assessors;
- planning, monitoring and recording of the assessment process;
- internal verification and recording of the internal verification process and dealing with special circumstances, appeals and malpractice.

An assessment method shall detail the assessment criteria that need to be met, cross referenced to the necessary evidence.

The assessment methodology shall be documented with clear learning outcomes.

**4.3 Assessment of PT personnel following completion of training to agreed level**

The candidates shall be assessed by an external independent assessment body according to 4.2 and shall include both theoretical and on-site practical examination.

When required, facilities for practical assessment shall be readily available, ensuring health and safety of the individuals are maintained.

Evidence of achievement for each learning outcome shall be created. It shall identify the assessment criteria that have been met and shall be cross referenced to the evidence provided.

The assessment record should include details of the type of evidence and the date of assessment, signed by both the assessor and the candidate.

**4.4 Re-assessment of PT personnel**

The certified individual shall be re-assessed, and the certificate renewed after 5 years.

The re-assessment shall document that the certificate holder still possesses the minimum skill described in prEN 17678-1:2021.