



# SLOVENSKI STANDARD

## SIST EN 12841:2024

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### Osebna oprema za varovanje pred padci z višine - Vrvni dostopni sistemi - Naprave za nastavitve vrvi

Personal fall protection equipment - Rope access systems - Rope adjustment devices

Persönliche Absturzschutzausrüstung - Systeme für seilunterstützten Zugang -  
Seileinstellvorrichtungen

Équipements de protection individuelle pour la prévention des chutes de hauteur -  
Systèmes d'accès par corde - Dispositif de réglage de corde pour maintien au poste de  
travail

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#### **ICS:**

13.340.60      Zaščita pred padci in zdrsi      Protection against falling and  
slipping

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## Personal fall protection equipment - Rope access systems - Rope adjustment devices

Équipements de protection individuelle pour la  
prévention des chutes de hauteur - Systèmes d'accès  
par corde - Dispositif de réglage de corde pour  
maintien au poste de travail

Persönliche Absturzschutzausrüstung - Systeme für  
seilunterstützten Zugang - Seileinstellvorrichtungen

This European Standard was approved by CEN on 17 December 2023.

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## EN 12841:2024 (E)

### European foreword

This document (EN 12841:2024) has been prepared by Technical Committee CEN/TC 160 “Protection against falls from height including working belts”, the secretariat of which is held by DIN.

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of an identical text or by endorsement, at the latest by August 2024, and conflicting national standards shall be withdrawn at the latest by August 2024.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 12841:2006.

A list of technical changes between this edition and EN 12841:2006 is given in Annex C. Background and rationale about the changes between this edition and EN 12841:2006 is given in Annex B.

This document has been prepared under a standardization request addressed to CEN by the European Commission. The Standing Committee of the EFTA States subsequently approves these requests for its Member States.

For the relationship with EU Legislation, see informative Annex ZA, which is an integral part of this document.

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.

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## **Introduction**

In rope access systems, rope adjustment devices are used in combination with suitable anchor lines, which could be a working line or a safety line, e.g. made of ropes conforming to Type A of EN 1891:1998. Rope adjustment devices are intended to be used to link suitable sit harnesses (e.g. conforming to EN 813) or suitable full body harnesses (e.g. conforming to EN 361) to a working line and a safety line to allow access, egress and changes in the work position, to give support and to protect against falls.

Attention is drawn to the limitations of rope adjustment devices. Type A rope adjustment devices are for use on safety lines to prevent a fall in the event of failure of the working line or its components. However, in extreme circumstances, such as failure of the working line or its components during improper use of the system, Type A rope adjustment devices may be called upon to prevent or arrest a limited fall. This is reflected in the test requirements. Type B and C rope adjustment devices are for ascending and descending a working line respectively, but also have a fall prevention function. The design of each type may be incorporated into another when, in every case, they should meet the higher requirements of any common or similar test.

In a rope access system, the worker is typically protected by a Type A rope adjustment device connected to a safety line and a Type B or C rope adjustment device connected to a working line. The two rope adjustment devices with their respective anchor line are all components of the protective system. It is fundamental for the safe use of a rope access system that the worker is always connected to both anchor lines, and that any slack in the anchor lines and connecting lanyards is avoided.

A non-exhaustive list of useful information for the rope adjustment devices described in this document is provided in the informative Annex A.

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## EN 12841:2024 (E)

### 1 Scope

This document applies to rope adjustment devices intended for use in rope access systems. It specifies the requirements, test methods, marking and manufacturer's instructions and information.

### 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 363:2018, *Personal fall protection equipment - Personal fall protection systems*

EN 364:1992, *Personal protective equipment against falls from a height - Test methods*

EN 365:2004, *Personal protective equipment against falls from a height - General requirements for instructions for use, maintenance, periodic examination, repair, marking and packaging*

EN 892:2012+A3:2023, *Mountaineering equipment - Dynamic mountaineering ropes - Safety requirements and test methods*

EN 1891:1998, *Personal protective equipment for the prevention of falls from a height - Low stretch kernmantel ropes*

EN ISO 9227:2022, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227:2022)*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 363:2018 and the following apply.

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

— ISO Online browsing platform: available at <https://www.iso.org/obp>

— IEC Electropedia: available at <https://www.electropedia.org/>

#### 3.1

##### **rope adjustment device**

component which, when fitted to an appropriate anchor line, will enable the user to vary his or her position along the anchor line

Note 1 to entry: Rope adjustment devices are sub-divided into Types A, B and C. The same rope adjustment device may conform to more than one type.

#### 3.2

##### **anchor line**

flexible line connected at least at one end to an anchor point, to provide a means of support or safeguard for a person

NOTE 1 to entry: An anchor line can be a working line or a safety line.

#### 3.3

##### **safety line**

anchor line provided as a safeguard



**3.4****working line**

anchor line used primarily for support during access, egress and work positioning

**3.5****Type A rope adjustment device: safety line adjustment device**

rope adjustment device for a safety line which accompanies the user during changes of position and/or allows adjustment of the safety line, and which locks automatically to the safety line under dynamic loading and that will hold a static load after arresting a fall

**3.6****Type B rope adjustment device: working line ascender**

manually operated rope adjustment device which, when attached to a working line, locks under load in one direction and slides freely in the opposite direction

NOTE 1 to entry: Type B rope adjustment devices are typically intended to be used in conjunction with a Type A rope adjustment device connected to a safety line.

**3.7****Type C rope adjustment device: working line descender**

manually operated, friction inducing rope adjustment device which allows the user to achieve a controlled downward motion and a stop, with hands off, anywhere on the working line

NOTE 1 to entry: Type C rope adjustment devices are typically intended to be used in conjunction with a Type A rope adjustment device connected to a safety line.

**3.8****attachment point**

primary point of connection to the rope adjustment device, as described by the manufacturer in the manufacturer's instructions and information

**3.9****release prevention**

mechanism or method to prevent the rope adjustment device from accidentally releasing from the anchor line

**3.10****connecting element**

element or combination of elements, which forms the link between a Type A rope adjustment device and the fall arrest attachment point of the full body harness

Note 1 to entry: Examples of a connecting element are a connector, a lanyard and/or energy dissipating element.

Note 2 to entry: An example of a suitable full body harness can be a harness conforming to EN 361:2002.

**3.11****arrest distance**

$H_{AD}$

vertical distance measured between the initial and final positions of the test mass in the dynamic performance test of the Type A rope adjustment device

NOTE 1 to entry: The arrest distance is expressed in metres.

**EN 12841:2024 (E)****3.12****braking force** $F_{max}$ 

maximum force measured at the anchor point during the braking period of the dynamic performance test of the Type A rope adjustment device

Note 1 to entry: The braking force is expressed in kilonewtons.

**3.13****locking distance** $H_{LD}$ 

vertical distance measured between the initial and final positions of the rope adjustment device in the dynamic strength test

Note 1 to entry: The locking distance is expressed in metres.

**3.14****descent control element**

integral element of the Type C rope adjustment device, normally operated by hand, used to control the velocity of descent down the anchor line

**3.15****hands-free locking element**

integral part or function of the descent control element of a Type C rope adjustment device which completely stops the descent and thereby prevents an uncontrolled descent or a fall if the user fails to engage the rope adjustment device

**3.16****panic locking element**

integral part or function of the descent control element of a Type C rope adjustment device which completely stops the descent and thereby prevents an uncontrolled descent or a fall if the user operates the rope adjustment device beyond its intended descent control parameters

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**3.17**  
**maximum rated load**

maximum mass of the person, including tools and equipment carried, as specified by the manufacturer

Note 1 to entry: Maximum rated load is expressed in kilograms.

[SOURCE: EN 353-1:2014+A1:2017, 3.11]

**3.18****minimum rated load**

minimum mass of the person, excluding tools and equipment carried, as specified by the manufacturer

Note 1 to entry: Minimum rated load is expressed in kilograms.

[SOURCE: EN 353-1:2014+A1:2017, 3.12]

## 4 Requirements

### 4.1 General requirements for all Types

#### 4.1.1 Anchor lines

The rope adjustment device shall be tested with anchor lines which meet the requirements of EN 1891:1998, Type A with the minimum and maximum diameter as specified on the rope adjustment device.

Different anchor line brands, models and constructions do not need to be considered.

If a rope adjustment device is specifically designed for use with types of anchor lines other than those conforming to EN 1891:1998, Type A ropes, the following requirements shall be met. The rope adjustment device shall be tested with anchor lines which meet at least the requirements of EN 1891:1998, 4.2, 4.4, 4.6, 4.7, 4.8 and 4.9 type B and shall be tested with each anchor line and diameter listed in the manufacturer's instructions and information.

NOTE The compliance of the anchor line with EN 1891:1998, 4.2, 4.4, 4.6, 4.7, 4.8 and 4.9 type B can be verified by a check of documentation.

#### 4.1.2 Compatibility

##### 4.1.2.1 Release prevention

The rope adjustment device shall be designed so that the rope adjustment device can only be detached from or attached to the anchor line by at least two consecutive deliberate manual actions, when tested in accordance with 5.3.2.1.

##### 4.1.2.2 Placement

When tested in accordance with 5.3.2.2, the rope adjustment device shall not unintentionally slide more than 300 mm along the anchor line.

#### 4.1.3 Edge design

When checked in accordance with 5.3.3, the rope adjustment device shall not have sharp or rough edges that can cause injury to the user.

#### 4.1.4 Corrosion resistance

After testing in accordance with 5.3.4, metal parts of the rope adjustment device shall show no evidence of corrosion of the base metal which could affect its function, e.g. the correct operation of moving elements and locking function. White scaling or tarnishing is acceptable if the function is not impaired.

NOTE Conformity to this requirement does not imply suitability for use in highly corrosive environments, e.g. offshore, chemical plants.

#### 4.1.5 Marking and information

Marking of the rope adjustment device shall be in accordance with Clause 6.

Instructions and information shall be supplied with the rope adjustment device in accordance with Clause 7.

### 4.2 Overview of the specific requirements for each type of rope adjustment devices

The specific requirements for each type of rope adjustment devices are summarised in Table 1.

## EN 12841:2024 (E)

Table 1 — Requirements only applicable to some types of rope adjustment devices

| Requirement                            | Conditioning                                | Type A<br>safety line<br>adjustment<br>device | Type B<br>working line<br>ascender | Type C<br>working line<br>descender |
|--|---|---|------------------------------------|-------------------------------------|
| Connecting elements                    | General                                     | 4.3.1   | Not applicable                     | Not applicable                      |
| Free movement                          | General, heat, wet, wet and cold, very cold | 4.3.2   | 4.4.1                              | Not applicable                      |
| Release prevention function            | General                                     | Not applicable                                | 4.4.2                              | Not applicable                      |
| Hands-free locking element             | General                                     | Not applicable                                | Not applicable                     | 4.5.1                               |
| Static strength                        | General                                     | 4.3.3   | Not applicable                     | 4.5.3                               |
| Minimum working performance            | General                                     | Not applicable                                | 4.4.3                              | 4.5.2                               |
| Dynamic performance                    | General                                     | 4.3.4   | Not applicable                     | Not applicable                      |
| Dynamic strength and residual strength | General, heat, wet, wet and cold, very cold | 4.3.5   | 4.4.4                              | 4.5.4                               |
| Descent velocity and panic locking     | General, heat, wet, wet and cold, very cold | Not applicable                                | Not applicable                     | 4.5.5                               |
| Temperature rise                       | General, wet                                | Not applicable                                | Not applicable                     | 4.5.6                               |

### 4.3 Specific requirements for Type A rope adjustment devices

#### 4.3.1 Connecting elements

The length of the connecting element for Type A rope adjustment devices shall not exceed 1 m, when measured in accordance with 5.4.1, and shall be within  $\pm 5\%$  of the length given in the manufacturer's instructions and information, see Clause 7 d).

#### 4.3.2 Free movement

Type A rope adjustment devices shall allow intentional movement in both directions on the anchor line when tested in accordance with 5.4.2.1 and 5.4.2.2.