



# SLOVENSKI STANDARD

## SIST EN 358:2019

01-februar-2019

Nadomešča:  
SIST EN 358:2000

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**Osebna varovalna oprema za namestitev pri delu in preprečevanje padcev z višine  
- Pasovi in vrvi z zankami za namestitev uporabnika pri delu ali za omejevanje  
njegovega delokroga**

Personal protective equipment for work positioning and prevention of falls from a height - Belts and lanyards for work positioning or restraint

**iTeh STANDARD PREVIEW**

Persönliche Schutzausrüstung zur Arbeitsplatzpositionierung und zur Verhinderung von Abstürzen - Gurte und Verbindungsmittel zur Arbeitsplatzpositionierung oder zum Rückhalten

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Équipement de protection individuelle de maintien au travail et de prévention contre les chutes de hauteur - Ceintures et longues de maintien au travail ou de retenue

**Ta slovenski standard je istoveten z: EN 358:2018**

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**ICS:**

13.340.60      Zaščita pred padci in zdrsi      Protection against falling and slipping

**SIST EN 358:2019**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN 358**

November 2018

ICS 13.340.60

Supersedes EN 358:1999

English Version

**Personal protective equipment for work positioning and prevention of falls from a height - Belts and lanyards for work positioning or restraint**

Équipement de protection individuelle de maintien au travail et de prévention contre les chutes de hauteur - Ceintures et longes de maintien au travail ou de retenue

Persönliche Schutzausrüstung zur Arbeitsplatzpositionierung und zur Verhinderung von Abstürzen - Gurte und Verbindungsmittel zur Arbeitsplatzpositionierung oder zum Rückhalten

This European Standard was approved by CEN on 9 April 2018.

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 CEN-CENELEC 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 CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION  
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**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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**EN 358:2018 (E)****European foreword**

This document (EN 358:2018) 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 May 2019, and conflicting national standards shall be withdrawn at the latest by May 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 supersedes EN 358:1999.

A list of technical changes between this edition and EN 358:1999 is given in Annex A.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directives.

For relationship with EU Directives, see informative Annexes ZA and ZB, which are integral parts of this document.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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## Introduction

When work undertaken at a height is of short duration, or for technical reasons, the provision of a working platform, suitable barriers and other similar safeguards is impracticable, then the prevention from falling from a height while performing correctly the related work activity can be achieved by the use of personal fall protection equipment. Equipment when manufactured in accordance with this European Standard is intended either to prevent the user from reaching a position where a fall can occur (restraint) or to secure the user safely in position at the point of work in such a way that the user can share and control his weight between the waist and the feet (work positioning). It is essential to note that such personal fall protection equipment by design does not meet the requirements necessary for the purposes of fall arrest. It may be necessary to supplement it with collective or personal means of protection against falls from a height. Its safe use, in practice, relies upon the effective training and instruction of the user.

Work positioning belts or restraint belts are not suitable if there is a risk of uncontrolled slippage by the user, e.g. when working on a steep roof or wet or slippery surfaces, which could result in the user being suspended by or exposed to unintended tension by the belt.

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**EN 358:2018 (E)****1 Scope**

This document applies to belts and lanyards intended for the purpose of work positioning or restraint. It specifies the requirements, testing, marking and information supplied by the manufacturer.

This document does not cover restraint lanyards with a fixed length which are not integrated into a belt.

NOTE Restraint lanyards with a fixed length which are not integrated into a belt are covered in EN 354.

**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 362:2004, *Personal protective equipment against falls from a height - Connectors*

EN 363, *Personal fall protection equipment - Personal fall protection systems*

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

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

EN 892, *Mountaineering equipment — Dynamic mountaineering ropes — Safety requirements and test methods*

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

ISO 2232, *Round drawn wire for general purpose non-alloy steel wire ropes and for large diameter steel wire ropes — Specifications*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 363 and the following 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 <http://www.iso.org/obp>

**3.1****waist belt**

body support that encircles the body at the waist

**3.2****restraint**

technique whereby a person is prevented by means of personal fall protection equipment from reaching zones where the risk of a fall from a height exists

**3.3****restraint lanyard**

component or element with a fixed length or with a length adjustment device, used to connect a body holding device to an anchor point as a means of support for restraint



**3.4****restraint belt**

arrangement of straps, fittings, buckles, or other elements in the form of a waist belt with one or more attachment elements as a means of support for restraint

Note 1 to entry: A restraint belt may be incorporated into a garment or into a full body harness.

**3.5****work positioning**

technique that enables a person to work supported by personal fall protection equipment in tension in such a way that a free fall is prevented

**3.6****work positioning lanyard**

component or element with a length adjustment device used to connect a body holding device to an anchor point, or to a structure by encircling it, as a means of support for work positioning

**3.7****work positioning belt**

arrangement of straps, fittings, buckles, back supports or other elements in the form of a waist belt with a ventral attachment element and/or side attachment elements as a means of support for work positioning

Note 1 to entry: A work positioning belt may be incorporated into a garment or into a full body harness.

**3.8****attachment element**

load bearing element provided for the connection of other components

**3.9****integrated lanyard**

lanyard that cannot be removed from the belt without a tool

**3.10****maximum rated load**

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

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

**3.11****fastening element**

element used to close and open the belt

**3.12****adjustment element**

element used to modify the length of the belt to fit the user

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## 4 Requirements

### 4.1 Design, construction and ergonomics

#### 4.1.1 Waist belts

**4.1.1.1** Waist belts shall be capable of adjustment to fit the wearer within the size range specified by the manufacturer, when checked in accordance with 5.1.2.

**4.1.1.2** Waist belts shall have at least one attachment element intended for the connection of load bearing components, e.g. a lanyard, when checked in accordance with 5.1.2. If the waist belt is equipped with two attachment elements for work positioning, one shall be in the right and one shall be in the left front quarter of the waist belt when fitted correctly.

**4.1.1.3** All parts of the waist belt shall be free from sharp edges and burrs that could cause injury, when checked in accordance with 5.1.2.

**4.1.1.4** Work positioning belts shall have a back support. When checked in accordance with 5.1.3 the minimum length of the back support shall be 50 mm longer than half the circumference of the work positioning belt when adjusted to the maximum radial length (waist size) specified by the manufacturer. The back support shall have a minimum width of 100 mm and shall cover a minimum overall surface area of 200 cm<sup>2</sup> symmetrically arranged on the spine of the user and shall have a minimum width of 60 mm elsewhere.

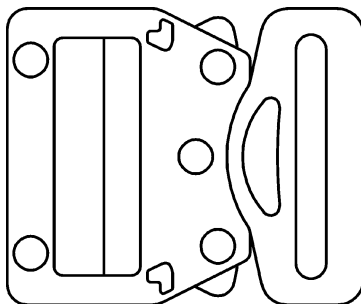
**4.1.1.5** Restraint belts shall be not less than 43 mm wide, when checked in accordance with 5.1.4.

#### 4.1.2 Fastening and adjustment elements of the waist belt

**4.1.2.1** When checked in accordance with 5.2.2, fastening elements shall be so designed and constructed that, when fastened in accordance with the manufacturer's information, they can be released only by at least two different deliberate manual actions.

**4.1.2.2** When checked in accordance with 5.2.3, fastening elements shall be so designed and constructed that, when fastened in accordance with the manufacturer's information, they cannot unintentionally open.

**4.1.2.3** If fastening elements are so designed and constructed that they can be opened by pushing two buttons, e.g. see Figure 1, when fastened in accordance with the manufacturer's information, the buttons have to go back in their original position when checked in accordance with 5.2.4. The fastening element shall not release when checked in accordance with 5.2.5.



**Figure 1 — Example for design of fastening elements with buttons**

**4.1.2.4** When tested in accordance with 5.6.2, the movement and slippage of the webbing through the adjustment elements of waist belts shall be not more than 20 mm. If the instructions supplied by the manufacturer describe that adjustment elements can be adjusted in more than one manner, each manner of adjustment shall be tested.

**4.1.2.5** When tested in accordance with 5.6.3 or 5.6.4, the movement and slippage of the webbing through the adjustment elements of waist belts with integrated lanyards shall be not more than 20 mm. If the instructions supplied by the manufacturer describe that the adjustment elements can be adjusted in more than one manner, each manner of adjustment shall be tested.

### **4.1.3 Work positioning and restraint lanyards**

**4.1.3.1** A work positioning lanyard shall be adjustable and designed and manufactured in such a way that the length adjustment device cannot be released from the lanyard involuntarily, when checked in accordance with 5.3.2.

**4.1.3.2** A work positioning lanyard shall be designed and manufactured in such a manner that it can be connected to a body holding device at one end and to an anchor point or back to the body holding device at the other end, directly or by an appropriate connector, when checked in accordance with 5.3.2. One termination may be permanently connected to the body holding device.

NOTE Body holding devices can be work positioning belts or sit harnesses.

**4.1.3.3** A restraint lanyard with a length adjustment device shall be designed and manufactured in such a way that the length adjustment device cannot be released from the lanyard involuntarily, when checked in accordance with 5.3.2.

**4.1.3.4** A restraint lanyard with a length adjustment device shall be designed and manufactured in such a manner that it can be connected to a body holding device at one end and to an anchor point at the other end, directly or by an appropriate connector, when checked in accordance with 5.3.2.

**4.1.3.5** A restraint lanyard with a fixed length shall be integrated in a waist belt at one end and designed and manufactured at the other end in such a manner that it can be connected to an anchor point directly or by an appropriate connector, when checked in accordance with 5.3.2. The length of the lanyard shall be within  $\pm 5\%$  of the length given on the marking of the lanyard, when measured in accordance with 5.3.3.

### **4.1.4 Length adjustment device**

**4.1.4.1** When checked in accordance with 5.4, the length adjustment device shall be free from sharp edges and burrs that could cause injury.

**4.1.4.2** When checked in accordance with 5.4, the length adjustment device shall be non-detachable from the lanyard.

NOTE For maintenance the length adjustment device could be detachable with the use of tools, if authorised in the instructions for use provided by the manufacturer.

**4.1.4.3** When checked in accordance with 5.4, the length adjustment device of a work positioning lanyard shall permit the adjustment of the lanyard length while in use as described in the information supplied by the manufacturer.

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**4.1.4.4** Any movement and slippage of the lanyard through the length adjustment device shall not exceed 50 mm, for lanyards when tested in accordance with 5.6.5 and for lanyards which are integrated in a waist belt when tested in accordance with 5.6.3. If the instructions supplied by the manufacturer describe that the length adjustment device can be fastened or adjusted in more than one manner, each manner of fastening or adjustment shall be tested.

**4.2 Materials**

**4.2.1** When checked in accordance with 5.5, materials used in waist belts and lanyards that may come into contact with the skin of a user shall not be known to cause irritating or sensitization effects when used as intended.

**4.2.2** When checked in accordance with 5.5, fibre ropes, webbing and yarns shall be made from virgin filament or multifilament synthetic fibres suitable for their intended use. The breaking tenacity of the synthetic fibres shall be known to be at least 0,6 N/tex.

**4.2.3** When checked in accordance with 5.5, the shade of the thread used for sewing shall be such as to contrast with the shade of the webbing or the rope to facilitate visual inspection.

**4.2.4** When checked in accordance with 5.5, and when wire is used in the construction of ropes for lanyards, it shall be made from steel. The ferrules of terminations shall be made from ductile metallic material. Wire used for ropes that are not made from stainless steel shall be galvanized in accordance with ISO 2232.

**4.2.5** When checked in accordance with 5.5, chains shall be made from steel. Chains that are not made from stainless steel shall be galvanized. Egg-shaped or similar end links and all connecting links shall be compatible with the chain.

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**4.3 Connectors**

Connectors incorporated in lanyards shall meet the requirements of EN 362:2004, 4.1 to 4.5.

**4.4 Static strength**

**4.4.1** When tested in accordance with 5.6.2, a waist belt shall sustain a force of 15 kN without releasing the cylinder.

**4.4.2** When tested in accordance with 5.6.3 a waist belt with an integrated lanyard with a length adjustment device shall sustain a force of 15 kN without releasing the cylinder.

**4.4.3** When tested in accordance with 5.6.4 a waist belt with an integrated restraint lanyard with a fixed length shall sustain a force of 15 kN without releasing the cylinder.

**4.4.4** When tested in accordance with 5.6.5 a lanyard with a length adjustment device shall sustain a force of 15 kN.

**4.5 Dynamic strength**

**4.5.1** When tested in accordance with 5.7.2 the torso dummy shall be held clear of the ground by the waist belt during the first impact.

NOTE It is acceptable, if the torso dummy slips out of the waist belt after rebound.

**4.5.2** When tested in accordance with 5.7.3 the torso dummy shall be held clear of the ground by the waist belt with an integrated lanyard during the first impact.

NOTE It is acceptable, if the torso dummy slips out of the waist belt after rebound.

**4.5.3** When tested in accordance with 5.7.4 a lanyard with a length adjustment device shall retain the rigid test mass clear of the ground.

#### **4.6 Corrosion resistance**

Waist belts and lanyards for work positioning and restraint with metallic elements shall be tested in accordance with 5.8. All metallic elements shall not show evidence of corrosion of the base metal which could affect its function. The presence of tarnishing and white scaling is acceptable.

NOTE 1 Care should be taken by the manufacturer not to combine different metals in such a way that there could be adverse galvanic reaction.

NOTE 2 Conformity to this requirement does not imply suitability for use in a marine environment.

#### **4.7 Marking and information supplied by the manufacturer**

**4.7.1** Marking of waist belts and lanyards for work positioning or restraint shall be in accordance with Clause 6.

**4.7.2** Information shall be supplied with waist belts and lanyards for work positioning or restraint in accordance with Clause 7.

### **5 Test methods**

#### **5.1 Examination of design and construction for waist belts**

**5.1.1** One unused waist belt shall be used for these examinations.

**5.1.2** Check the waist belt by reference to appropriate documentation and by normal or corrected vision and/or tactile examination and/or by measuring.

**5.1.3** Check that the work positioning belt is fitted with a back support and measure the dimensions to the nearest millimetre.

**5.1.4** Measure the minimum width of the restraint belt to the nearest millimetre.

#### **5.2 Examination of design and construction for fastening and adjustment elements**

**5.2.1** One unused waist belt shall be used for these examinations.

**5.2.2** Check the fastening elements by visual and/or tactile examination.

**5.2.3** Check by visual and/or tactile examination that the fastening elements cannot unintentionally open.

**5.2.4** Push one button of the fastening element, and check that it goes back in its original locking position. Repeat for the second button.