SLOVENSKI STANDARD
SIST EN 360:1996

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Osebna varovalna oprema za zaščito pred padci z višine - Varovalne naprave s samodejnim vračanjem

Personal protective equipment against falls from a height - Retractable type fall arresters

Persönliche Schutzausrüstung gegen Absturz - Höhensicherungsgeräte

Equipement de protection individuelle contre les chutes de hauteur - Antichutes a rappel automatique

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English version

Personal protective equipment against falls from a height - Retractable type fall arresters

Equipement de protection individuelle contre les chutes de hauteur - Antichutes à rappel automatique

Persönliche Schutzausrüstung gegen Absturz - Höhensicherungsgeräte

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CEN

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Foreword

This European Standard was prepared by the Technical Committee CEN/TC 160 "Protection against falls from a height including working belts", of which the secretariat is held by DIN.

This European Standard has been prepared under a mandate given to CEN by the Commission of the European Communities and the European Free Trade Association, and supports essential requirements of the EC Directive(s).

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of an identical text or by endorsement, at the latest by June 1993, and conflicting national standards shall be withdrawn at the latest by June 1993.

The Standard was approved and in accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

1 Scope

This standard specifies the requirements, test methods, instructions for use and marking for retractable type fall arresters. Retractable type fall arresters according to this standard are used in fall arrest systems specified in EN 363 in conjunction with full body harnesses specified in EN 361. Other types of fall arresters are specified in EN 353-1 and EN 353-2, and energy absorbers are specified in EN 355.

2 Normative references

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 353-1 Personal protective equipment against falls from a height - Guided type fall arresters on a rigid anchorage line

EN 353-2 Personal protective equipment against falls from a height - Guided type fall arresters on a flexible anchorage line

EN 354:1992 Personal protective equipment against falls from a height - Lanyards

EN 355 Personal protective equipment against falls from a height - Energy absorbers

EN 361 Personal protective equipment against falls from a height - Full body harnesses

EN 362 Personal protective equipment against falls from a height - Connectors

EN 363:1992 Personal protective equipment against falls from a height - Fall arrest 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 and for marking

3 Definitions

For the purpose of this standard the following definitions apply.

3.1 Retractable type fall arrester

"A fall arrester with a self-locking function and an automatic tensioning and return facility for the lanyard, i. e. the retractable lanyard. An energy dissipating element may be incorporated in the device itself or in the retractable lanyard." [EN 363]

3.2 Retractable lanyard

"A connecting element of a retractable type fall arrester. A retractable lanyard may be of wire rope, webbing or synthetic fibre rope." [EN 363]

3.3 Energy dissipating element

"An element of a connecting sub-system for fall arrest purposes. An energy dissipating element may be incorporated in a fall arrester, in a lanyard or in an anchorage line." [EN 363]

3.4 Braking force

"The maximum force F_{max} in kilonewtons measured at the anchorage point or the anchorage line during the braking period of the dynamic performance test." [EN 363]

3.5 Arrest distance

"The vertical distance H in metres measured at the mobile load bearing point of the connecting sub-system from the initial position (onset of the free fall) to the final position (equilibrium after the arrest), excluding the displacements of the full body harness and its attachment element." [EN 363]

4 Requirements

4.1 Design and ergonomics

The general requirements for the design and ergonomics are specified in 5.1 of EN 363:1992.

A retractable type fall arrester may comprise a drum around which the retractable lanyard reels or unreels, or a return pulley with counterweights.

4.2 Materials and construction

The retractable lanyard shall be a wire rope, a webbing or a synthetic fibre rope. The material of a retractable lanyard shall comply with 4.2.2 and 4.2.3 of EN 354:1992.

It shall be confirmed in the static strength test specified in 5.2 that the internal end of the retractable lanyard is suitably secured to the device.

The external end of the retractable lanyard shall suitably terminated.

Connectors for retractable type fall arresters shall comply with EN 362.

4.3 Locking

4.3.1 Locking after conditioning

When conditioned as described in 5.1.2.1 and tested as described in 5.1.2.3 with a minimum test mass of 5 kg, the retractable type fall arrester shall in each case lock and remain locked until released.

4.3.2 Locking after optional conditioning

Only if the instructions for use and the marking on the retractable type fall arrester (see clause 6) claims a feature concerning the use under specific conditions (see 5.1.2.2), the locking function of the fall arrester shall be tested as appropriate to the claims of the instructions for use and the marking.

When conditioned as described in 5.1.2.2 and tested as described in 5.1.2.3 with a minimum test mass of 5 kg, the retractable type fall arrester shall in each case lock and remain locked until released.

4.4 Static strength

Retractable type fall arresters with a retractable lanyard made from synthetic fibre rope or webbing shall sustain a force of at least 15 kN when tested as described in 5.2.

Retractable type fall arresters with a retractable lanyard made from wire rope shall sustain a force of at least 12 kN when tested as described in 5.2.

4.5 Dynamic performance

When tested as described in 5.3.2 with a rigid steel mass of 100 kg, the braking force F_{max} shall not exceed 6,0 kN and the arrest distance H shall not exceed 2,0 m.

4.6 Optional requirement concerning endurance

Only if the instructions for use and the marking on the retractable type fall arrester (see clause 6) claims the feature concerning endurance the retractable type fall arrester shall be tested as described in 5.4 with a total of 1000 relative movements.

4.7 Corrosion resistance

After testing as described in 5.5 the elements of the retractable type fall arrester shall be examined. Where necessary to gain visual access to the internal elements, dismantle the device. The test is classed as a failure if any corrosion is evident that could affect the function of the device.
(White scaling or tarnishing is acceptable.)

5 Test methods

5.1 Locking test after conditioning

5.1.1 Apparatus

5.1.1.1 Apparatus for conditioning

The conditioning apparatus shall comply with 4.8 of EN 364:1992.

5.1.1.2 Apparatus for the locking test

The locking test apparatus shall consist of an anchorage point and a minimum test mass of 5 kg according to 5.11.6.2 of EN 364:1992.

5.1.2 Method

5.1.2.1 Conditioning

The conditioning to heat, to cold and to wet is described in 5.11 of EN 364:1992.

5.1.2.2 Optional conditioning

The conditioning to dust and to oil is optional and described in 5.11 of EN 364:1992.

5.1.2.3 Locking test

The locking test shall be conducted as described in 5.11.6.2 of EN 364:1992.

5.2 Static strength test

5.2.1 Apparatus

The static strength apparatus shall comply with 4.1 of EN 364:1992.

5.2.2 Method

The static strength test shall be conducted as described in 5.6.2 of EN 364:1992.

5.3 Dynamic performance test

5.3.1 Apparatus

The dynamic performance test apparatus shall comply with 4.4, 4.5 and 4.6 of EN 364:1992.

5.3.2 Method

The dynamic performance test shall be conducted as described in 5.7.2 of EN 364:1992.

5.4 Endurance test

5.4.1 Apparatus

The endurance test apparatus shall comply with 4.9 of EN 364:1992.

5.4.2 Method

The endurance test shall be conducted as described in 5.12.2.2 of EN 364:1992.

5.5 Corrosion test

The corrosion test shall be conducted as described in 5.13 of EN 364:1992 for a minimum period of 24 h.