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Safety requirements for cableway installations designed to carry persons — Recovery and evacuation

bsi.

National foreword

This British Standard is the UK implementation of EN 1909:2017. It supersedes BS EN 1909:2004 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MCE/20, Aerial ropeways.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Safety requirements for cableway installations designed to carry persons - Recovery and evacuation

Prescriptions de sécurité pour les installations à câbles transportant des personnes - Récupération et évacuation

Sicherheitsanforderungen an Seilbahnen für den Personenverkehr - Räumung und Bergung

This European Standard was approved by CEN on 24 November 2014.

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Contents

Page

European foreword

This document (EN 1909:2017) has been prepared by Technical Committee CEN/TC 242 "Safety requirements for cableway installations designed to carry persons", 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of an identical text or by endorsement, by July 2017 at the latest, and all conflicting national standards shall be withdrawn no later than July 2017.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights or similar rights. CEN and/or CENELEC shall not be held responsible for identifying all or some of these patent rights.

This document supersedes EN 1909:2004.

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 Directive 2000/9/EC.

For the relationship with EU Directive 2000/9/EC, see informative Annex ZA, which is an integral part of this document.

The most significant changes compared to the previous edition of EN 1909 are as follows:

— For Subclause 5.2.2 Danger factors: the factor "incompetence, unfitness, inattention or failure of those involved in evacuation operations" has been replaced by "human failure".

— For Subclause 7.2 Transmission of information: addition of a requirement in the event that landline telephones are used in tunnels.

— For numbered entry 9.1.6: addition of a recommendation concerning the management of lighting and the precautions to be taken against fire.

— For Subclause 9.6.3: Use of helicopters: change of approach. The previous version of the standard defined precisely the methods and resources to be implemented (which did not always correspond to field practices). The new version of the standard only indicates the need for prior consultation between the cableway operator and the organisation responsible for the helicopter.

— For Annex ZA (informative), Relationship between this European Standard and the Essential Requirements of EU Directive 2000/9/EC relating to cableway installations designed to carry persons: addition of two essential requirements of the Directive (4.4 and 7.3.2) in view of Clause 9.

This document forms part of the standards programme approved by the CEN Technical Board on safety requirements for cableway installations designed to carry persons. This programme comprises the following standards:

— EN 1907, *Safety requirements for cableway installations designed to carry persons – Terminology;*

— EN 12929 (all parts), *Safety requirements for cableway installations designed to carry persons – General requirements;*

— EN 12930, *Safety requirements for cableway installations designed to carry persons – Calculations;*

— EN 12927 (all parts), *Safety requirements for cableway installations designed to carry persons – Ropes;*

— EN 1908, *Safety requirements for cableway installations designed to carry persons – Tensioning devices;*

— EN 13223, *Safety requirements for cableway installations designed to carry persons – Drive systems and other mechanical equipment;*

— EN 13796 (all parts), *Safety requirements for cableway installations designed to carry persons – Carriers;*

— EN 13243, *Safety requirements for cableway installations designed to carry persons – Electrical equipment other than for drive systems;*

— EN 13107, *Safety requirements for cableway installations designed to carry persons – Civil engineering works;*

— EN 1709, *Safety requirements for cableway installations designed to carry persons – Pre-commissioning inspection, maintenance and operational inspection and checks;*

— EN 1909, *Safety requirements for cableway installations designed to carry persons – Recovery and evacuation;*

— EN 12397, *Safety requirements for cableway installations designed to carry persons – Operation;*

— EN 12408, *Safety requirements for cableway installations designed to carry persons – Quality assurance*

This series of standards forms a complete set dealing with the design, manufacture, construction, maintenance and operation of all cableway installations designed to carry persons.

According to the CEN/CENELEC internal regulations, the national standards organizations 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, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, The Former Yugoslav Republic of Macedonia, Turkey and the United Kingdom.

1 Scope

This European Standard specifies the safety requirements applicable to the recovery of carriers and the evacuation of passengers from cableway installations designed to carry persons, with the exception of ski-tows. This standard is applicable to various types of installations and takes into account their environment.

It establishes the requirements relating to the methods and equipment to be used to ensure the safety of passengers on cableways in the event of extended stoppage of the installation.

It covers only the situation resulting from immobilization of the carriers, even if the passengers are not in immediate danger.

It does not cover specific operations resulting from an accident.

It includes requirements relating to the prevention of accidents and to worker protection, without affecting the application of national requirements relating to construction law or statutory law, or to the protection of specific groups of people. It does not apply to installations for the transportation of goods by rope or to lifts.

It does not deal with design requirements for carriers.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1709, *Safety requirements for cableway installations designed to carry persons - Precommissioning inspection, maintenance, operational inspection and checks*

EN 1907, *Safety requirements for cableway installations designed to carry persons - Terminology*

EN 1908, *Safety requirements of cableway installations designed to carry persons - Tensioning devices*

EN 12397, *Safety requirements for cableway installations designed to carry persons - Operation*

EN 12408, *Safety requirements for cableway installations designed to carry persons - Quality assurance*

EN 12927 (all parts), *Safety requirements for cableway installations designed to carry persons - Ropes*

EN 12929 (all parts), *Safety requirements for cableway installations designed to carry persons - General requirements*

EN 12930, *Safety requirements for cableway installations designed to carry persons - Calculations*

EN 13107, *Safety requirements for cableway installations designed to carry persons - Civil engineering works*

EN 13223, *Safety requirements for cableway installations designed to carry persons - Drive systems and other mechanical equipment*

EN 13243, *Safety requirements for cableway installations designed to carry persons - Electrical equipment other than for drive systems*

EN 13796 (all parts), *Safety requirements for cableway installations designed to carry persons - Carriers*

EN 60268-5, *Sound system equipment – Part 5: Loudspeakers (IEC 60268-5)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1907 apply.

4 Symbols and abbreviations

This document does not include either symbols or abbreviations.

5 General requirements

5.1 Application of this standard

The requirements of this European Standard apply to all cableway installations together with those of standards EN 1709, EN 1908, EN 12397, EN 12408, EN 12927 (all parts), EN 12929 (all parts), EN 12930, EN 13223, EN 13243, EN 13107 and EN 13796 (all parts).

5.2 Safety principles

5.2.1 General

The safety principles set out in EN 12929-1 apply.

In addition, the following hazard scenarios and safety measures relative to the scope of this document are to be taken into consideration.

5.2.2 Hazard scenarios

The following events many lead to hazardous situations which may be avoided or reduced by the safety requirements of this document:

— prolonged exposure of persons to bad weather conditions, for example, wind, cold, heat, etc.;

— prolonged immobilization;

— human error;

— non-existence or inadequacy of organization;

— unsuitable, inadequate or improperly used equipment;

— unreasonable behaviour of the passengers;

— lack of self-sufficiency of the passengers.

5.2.3 Safety measures

In order to prevent or reduce the risks arising from the hazard scenarios mentioned in 5.2.2, the following safety measures shall be taken.

All cableways shall be designed, constructed and operated in such a way that, in the event of extended stoppage, it is possible to inform the passengers quickly and to ensure their return to safety within a reasonable time, without compromising their safety or the safety of the evacuation personnel.

In such circumstances, the carriers shall preferably be recovered. Failing this, the passengers shall be evacuated in accordance with the provisions of the previously established evacuation plan.

6 General requirements for recovery and evacuation

In the event of the installation being immobilized for a prolonged period of time, the head of operations shall inform and reassure the passengers.

Within half an hour of stoppage, the head of operations shall:

— either start recovery of the carriers;

— or initiate the evacuation of the passengers.

The head of operations may, however:

— defer the starting of passenger evacuation if he is sure he will be able to implement the recovery of the carriers under the prevailing circumstances;

— continue with preparations for recovery of the carriers while the evacuation of the passengers is in progress and interrupt the latter when recovery of the carriers becomes possible.

The anticipated total duration of all the operations specified in the evacuation plan shall not exceed 3 h and 30 min. If the safety analysis indicates that a shorter duration is needed, this should be taken into account.

In the event that the number of operating personnel is insufficient to ensure compliance with the scheduled evacuation time, the controller shall make contracts with separate persons or organizations such as the fire service, mountain rescue teams.

The total duration shall be counted from the immobilization of the installation to the arrival at a place of safety of the last evacuated passenger. The controller shall, as necessary, provide assistance for the passengers until they are able to proceed unaided. The evacuation plan shall, if necessary, contain information relating to this.

7 Requirements for informing the passengers

7.1 Information content

Passenger information consists of:

— notifying them of the situation;

— informing them of the progress of the operations undertaken to resolve the situation;

— telling them what they need to do.

It should also include the anticipated maximum period of immobilization.

This information shall be repeated at regular intervals.

7.2 Transmission of the information

This information is transmitted in particular:

— from the ground by the personnel appointed to do this, equipped if necessary with megaphones;

— by loudspeakers on the line structures;

— by sound systems in the carriers;

— by the attendants in accompanied carriers.

The steps taken shall permit the communication of information clearly and intelligibly whatever the position of the carriers on the line and even in unfavourable meteorological conditions.

Fixed equipment shall be specially designed and installed to withstand bad weather conditions as appropriate. It shall allow communication from the control point or a monitoring station. The requirements of EN 60268-5 apply.

In accompanied carriers, it shall be possible to establish a two-way voice link between the carriers and the control point.

In installations without manned control points, this link shall be established with a monitoring station.

If fixed telephones are used in tunnels, the distance between the phones shall not exceed 100 m.

8 Requirements for the recovery of the carriers

8.1 It shall be possible to recover the carriers as easily as possible in order that evacuation of the passengers is only necessary in exceptional cases. The measures adopted for design, construction and operation shall be suitable for the characteristics of the installation and its location. They shall allow the recovery of all carriers within a time interval of one and a half hours from stoppage of the installation.

In particular, in the case of aerial ropeways with detachable grips, the failure of carrier haulage equipment shall not prevent recovery of the carriers and, in such event, it shall be possible to overcome it by means of easily implemented measures.

8.2 Depending on the measures adopted and the circumstances, recovery of the carriers shall be carried out using the main, auxiliary or recovery drive system, or else by using gravity or any other additional device.

The implementation procedures shall indicate clearly the operations to be carried out and the speeds not be exceeded.

8.3 Recovery of the carriers shall take place with the safety devices envisaged during operation. However, even if these have failed, recovery shall still be possible. In this case, the measures necessary to compensate for the partial or complete switching out of the safety monitoring devices shall be taken, in accordance with the requirements of EN 12397 relative to the operating procedures in the event of exceptional circumstances.

8.4 A recovery operation shall only begin after it has been ascertained that neither personnel nor passengers will be endangered.

If an evacuation operation is interrupted in order to begin carrier recovery, the personnel and passengers must be taken into account when they are being evacuated.

For funicular railways, a thorough check of the evacuation route along the length of the line shall be carried out.

9 Requirements for evacuation of the passengers

9.1 Provisions common to the various methods

9.1.1 The line structures and carriers shall be equipped in such a way that the specified evacuation and recovery operations (personnel access to line support structures and ropes, passage of evacuation carriers, prepared evacuation routes, etc.) can be carried out easily and safely.

In closed carriers, the openings provided for the evacuation of the passengers shall be:

— of adequate size to allow the passage of persons;

— suitable for the evacuation equipment being used;

— restricted or fitted with a means of protection so that passengers awaiting evacuation are not endangered.

Carriers shall conform to the requirements of EN 13796-1.

9.1.2 During passenger evacuation, it shall be ensured that the installation is kept stationary.

The personnel shall assist the passengers when entering and leaving the evacuation equipment.

The evacuation of a passenger shall not compromise the safety of the other occupants awaiting evacuation.

9.1.3 During all phases of the operation, the methods used shall at all times take into account a possible failure of the personnel to control the danger, in particular the risk of falling. Care shall in particular be taken to ensure that personnel are not endangered and do not endanger the passengers if they release equipment controls or ropes.

Where necessary, the evacuation personnel shall be able to evacuate themselves while observing the safety rules of mountaineering.

9.1.4 The evacuation methods and equipment shall be designed in such a way that their use does not require active participation on the part of the passengers.

Their participation may be permitted if it does not compromise either safety or the execution of the evacuation plan.

9.1.5 If the installation is capable of transporting handicapped or injured persons, provision shall be made for their evacuation.

9.1.6 To ensure the satisfactory implementation of evacuation operations in the dark, it shall be possible to mobilize the necessary lighting equipment quickly.

To manage the lighting and regarding the precautions to be taken to prevent fire, it is recommended that the relevant specifications used for trams or underground trains in tunnels be used.

9.2 Evacuation to the ground

9.2.1 Evacuation of the passengers to the ground is permissible subject to the following conditions:

— the evacuation height does not exceed 100 m;

— the terrain is suitable or is prepared accordingly.

9.2.2 Evacuation shall be carried out by one or more teams, each responsible for one or more sections of the line.

Each section shall be defined on the basis of the number of carriers and the maximum number of passengers who may be there, taking into account the equipment required, the difficulties of access for the evacuation personnel and the difficulties of the terrain.

9.2.3 If the carriers are accompanied, the attendants will normally be responsible for the evacuation of the passengers from the cabins.

9.2.4 In the case of unaccompanied carriers, the evacuation personnel shall gain access to the carriers from the ground or along the rope.

During movements by personnel along the rope, their connection to the rope shall be doubled. Apart from during their own evacuation, personnel shall be permanently attached either to a structure or to the rope or the carrier. However, special arrangements shall be allowed for evacuation using ladders.

9.2.5 The evacuation personnel in the carriers shall be able to communicate with the team on the ground. This may require the use of a radio link.

9.3 Evacuation along the rope

9.3.1 If evacuation of the passengers directly to the ground is not possible along all or part of the line of the cableway, equipment for evacuation along the rope shall be provided at least for those parts of the line.

9.3.2 This evacuation equipment shall be such as to ensure that the evacuation operations can be completed within the time specified in the evacuation plan.

If no specific requirements are laid down for this equipment, the appropriate safety requirements for installations for passenger transportation by rope shall apply.

9.3.3 Use of the evacuation equipment shall be easy and possible within a limited time. The appropriate mechanical equipment shall therefore be installed permanently. The number of operators and the maximum time necessary shall be clearly stated and justified in the evacuation plan. The times indicated in the evacuation plan shall be confirmed by tests.

9.3.4 The evacuation equipment shall have a drive separate from the main drive with an independent power supply, or else consist of a self-powered carrier. It shall be of adequate size. It shall be fitted with a continuously variable speed control and, if necessary, a position indicator.

9.3.5 The evacuation carrier shall be accompanied. A direct radio link shall be provided between the evacuation carrier and the control centre. This link shall have priority within the communication network.

9.3.6 Suitable lighting shall be provided so as to facilitate docking operations in the dark.

9.3.7 The line carriers and evacuation carriers shall be designed in such a way that their connection and the transfer and unloading of passengers are easy and safe.

9.3.8 The stability of the evacuation carrier shall be ensured as it moves, when passing other carriers, and during transfer operations.

9.4 Other evacuation methods

Devices external to the installation may be used for the evacuation of passengers subject to the following conditions:

— they are normally intended for the transfer of people and conform to the applicable standards and regulations (for example, mobile hydraulic platforms);

— their use has been tested on all or part of the installation and the corresponding procedures and limits of use have been defined, if necessary by agreement;

— their incorporation in the evacuation plan takes into account the above conditions and their availability.

If the use of an external device depends on favourable meteorological conditions or other unpredictable evacuation factors, the evacuation plan shall not be based principally on this. This applies in particular to the use of helicopters, which shall be covered by a special section of the evacuation plan.

9.5 Equipment for evacuation to the ground

9.5.1 General requirements

9.5.1.1 The equipment shall be resistant to abrasion, corrosion and ageing as appropriate to its use. The production of heat shall be considered.

9.5.1.2 The equipment shall be ergonomically designed such that its use does not constitute a danger and that the physical effort required of personnel is limited to the minimum required for the operation.

9.5.1.3 If there is a danger of a fall from a height during any of the phases of the evacuation operation, the personnel shall use appropriate personal protective equipment.

NOTE See Bibliography.

9.5.1.4 The equipment required for the evacuation of the passengers shall be safe and quick to use.

In particular, the harness system shall be designed to hold a person being evacuated correctly with no danger of an uncontrolled fall, even when the person is moving in an uncoordinated way. Attachment and removal shall be simple and the fixing device shall be fitted with protection to prevent accidental opening (see 9.1.4).

9.5.1.5 The equipment necessary for evacuation, including the anchorage points, shall be subjected to a test of its suitability in situ on the actual installation. The equipment shall be used, stored, maintained, checked, tested and replaced in accordance with the standards, the recommendations of the manufacturer and the evacuation plan. The in-situ test shall be repeated periodically.

Compatibility of all replacement equipment or spare parts shall be verified.

9.5.1.6 It shall be possible to identify an item of equipment without any risk of confusion; complete, clear and permanently legible instructions for its use shall be kept with it.

9.5.2 Requirements specific to equipment for access to the carriers from the ground

9.5.2.1 Poles and ladders shall be hooked onto the ropes or carriers, shall have the correct supports and shall be held firmly to ensure stability during use.

This equipment shall only be used for operations involving low heights.

9.5.2.2 The stability of mobile hydraulic platforms shall be ensured and platforms shall be equipped so that the transfer of passengers from the carriers to the ground is easy and safe.

9.5.3 Requirements specific to equipment for access to carriers from line structures and by the rope

9.5.3.1 Use of the equipment shall be simple and quick. Operations to pass line structures shall be as easy as possible and it shall be possible for a single person to take the equipment past carriers.

Carrier trucks shall be protected against derailment and unintentional disconnection. The risk of trapping or entanglement of the personnel shall also be reduced as far as possible.

The speed of movement shall be uniform and it shall be possible to stop at any point.

The equipment for moving along the rope shall be fitted with a fixing point for the rescuer's harness.

9.5.3.2 The personnel shall be protected against the risk of falling and runback, especially in the event of the equipment’s failure to move along the rope or due to their own weakness. The risk of runback may be controlled by means of a locking rope or winch or a failsafe on-board brake. Particular care shall be given to the safety of personnel during operations for transferring from a line structure to the rope or from the rope to a carrier.

Personnel accessing the carriers shall be provided with equipment for their own evacuation.

9.5.4 Requirements specific to equipment for descent from carriers

9.5.4.1 Passengers shall be protected against the risks of falling during descent by ladder.

9.5.4.2 The characteristics of the descent devices shall be suitable for the installation and the provisions of the evacuation plan.

NOTE See Bibliography.

9.5.4.3 If the descent devices and other equipment are stored in the carriers, they shall be maintained in good condition.

9.6 Evacuation plan

9.6.1 Choice of evacuation methods

The choice of evacuation methods shall be made taking into account:

— the type and characteristics of the installation and its operation;

— the possible presence of handicapped or injured persons;

— the environment of the installation (the ground beneath the line, avalanche danger, weather conditions);

— the human resources which can be mobilized in the permitted time;

— the technical possibilities of the rescue equipment.

Once the organization of the evacuation operations has been established, the controller shall draw up the evacuation plan (annexed to the operating regulations), the implementation of which is the responsibility of the head of operations.

The contents of the plan may evolve, in particular on the basis of changes occurring in the means of operation, advances in equipment and the organization of the teams; keeping the plan up to date is the responsibility of the head of operations.

9.6.2 Contents of the evacuation plan

This document shall cover the following items:

9.6.2.1 Establishment of the anticipated duration of the operations and of the maximum time for assessment.

9.6.2.2 Definition of the objectives of the evacuation operation, specifying the location of the operations centre, the places of safety where passengers are to be taken and the corresponding routes, the characteristics of the line, the maximum number of carriers and passengers on the line, running heights above ground, etc.

9.6.2.3 Definition of methods to be used for the various sections of the installation:

For unaccompanied carriers (gondola lifts, chairlifts, etc.), the possibilities of access to the carriers have been specified.

The information mentioned in 9.6.2.2. and 9.6.2.3. can be shown on a map, for example.

9.6.2.4 Means of alerting the evacuation personnel, setting up an operations centre and the necessary means of communication, means of informing the passengers.

9.6.2.5 Constitution of evacuation teams, designation of the sections of the line for which they are responsible, details of equipment allocated to each team and its storage place, means of transportation to their evacuation sites.

9.6.2.6 Timing of the task of each team (assembly, allocation of tasks and equipment, transportation to evacuation sites, access to carriers, descent to the ground and taking charge of passengers until they reach previously established places of safety, return of the team to base) drawn up for the most unfavourable case.

9.6.2.7 Summary list of available personnel and equipment resources.

9.6.2.8 Provisions adopted for checking and storing of equipment after use.

9.6.2.9 Debriefing.

9.6.3 Use of helicopters

The use of helicopters can be a supplementary measure. Where a helicopter is to be used, coordination between the controller of the cableway installation and the helicopter operating company shall be organized in advance.

10 Training and instruction of the evacuation personnel

Those involved in evacuation operations shall be competent in the tasks allocated to them, in order that their safety and that of the evacuees is fully ensured. The head of operations shall assess the required competence on the basis of medical suitability for the work, on the one hand, and professional ability, on the other.

Professional ability is based on:

— successful completion of training for this type of work which may be organized either by the operator or by a specialist organization;

— precise instruction on the evacuation plan in general and on the specific role to be played including, in particular, the use of the equipment to be used specifically for each evacuation;

— regular training in this task within the rescue team. The aim of this is to prepare those involved for their particular task, and it shall be carried out at least annually. It enables the use of the resources, equipment and procedures to be tested and improvements to meet any problems which may be encountered to be developed.

For tasks which expose the evacuation personnel to the risk of falling from a height (evacuation along the rope, by helicopter, etc.), the progress of the training and practice shall take into account their initial levels of capability and the tasks to be carried out.

Annex ZA
(informative)

Relationship between this European Standard and the Essential Requirements of EU Directive 2000/9/EC relating to cableway installations designed to carry persons

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2000/9/EC relating to cableway installations designed to carry persons.

Once this standard is cited in the Official Journal of the European Union (OJEU) under that Directive and has been implemented as a national standard in at least one Member State, compliance with the clauses of this standard given in Table ZA.1 confers, within the limits of the scope of this standard, a presumption of conformity with the corresponding Essential Requirements of that Directive and associated EFTA regulations.

Table ZA.1 — Correspondence between this European Standard and Directive 2000/9/EC relating to cableway installations designed to carry persons

Clause(s)/sub-clause(s) of this EN	Essential Requirements (ERs) of Directive 2000/9/EC	Qualifying remarks/Notes
5.2	2.2	-
Clause 6	7.2	-
Clause 7	4.4, 7.2	-
Clause 8	4.2.2, 7.2	-
Clause 9	3.1.1, 4.4, 7.2, 7.3.2	-
9.6	2.3	-
Clause 10	7.1.2, 7.2	-

WARNING: Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

Bibliography

[1] EN 341, *Personal fall protection equipment - Descender devices for rescue*

[2] EN 353-2, *Personal protective equipment against falls from a height - Part 2: Guided type fall arresters including a flexible anchor line*

[3] EN 354, *Personal fall protection equipment - Lanyards*

[4] EN 355, *Personal protective equipment against falls from a height - Energy absorbers*

[5] EN 358, *Personal protective equipment for work positioning and prevention of falls from a height - Belts for work positioning and restraint and work positioning lanyards*

[6] EN 360, *Personal protective equipment against falls from a height - Retractable type fall arresters*

[7] EN 361, *Personal protective equipment against falls from a height - Full body harnesses*

[8] EN 362, *Personal protective equipment against falls from a height - Connectors*

[9] EN 363, *Personal fall protection equipment - Personal fall protection systems*

[10] EN 364, *Personal protective equipment against falls from a height - Test methods*

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

[12] EN 564, *Mountaineering equipment - Accessory cord - Safety requirements and test methods*

[13] EN 565, *Mountaineering equipment - Tape - Safety requirements and test methods*

[14] EN 566, *Mountaineering equipment - Slings - Safety requirements and test methods*

[15] EN 567, *Mountaineering equipment - Rope clamps - Safety requirements and test methods*

[16] EN 795, *Personal fall protection equipment - Anchor devices*

[17] EN 813, *Personal fall protection equipment - Sit harnesses*

[18] EN 892, *Mountaineering equipment - Dynamic mountaineering ropes - Safety requirements and test methods*

[19] EN 1496, *Personal fall protection equipment - Rescue lifting devices*

[20] EN 1497, *Personal fall protection equipment - Rescue harnesses*

[21] EN 1498, *Personal fall protection equipment - Rescue loops*

[22] EN 1868, *Personal protective equipment against falls from a height - List of equivalent terms*

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

[24] EN 12275, *Mountaineering equipment - Connectors - Safety requirements and test methods*

[25] EN 12277, *Mountaineering equipment - Harnesses - Safety requirements and test methods*

[26] EN 12278, *Montaineering equipment - Pulleys - Safety requirements and test methods*

[27] EN 12492, *Mountaineering equipment - Helmets for mountaineers - Safety requirements and test methods*

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