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CAN/CSA-Z259.2.3:16
(ISO 22159:2007, MOD)
National Standard of Canada
(reaffirmed 2020)

CAN/CSA-Z259.2.3:16
Descent devices
(ISO 22159:2007, MOD)

Standards Council of Canada
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CSA Preface

This is the third edition of CAN/CSA-Z259.2.3, *Descent devices*, which is an adoption, with Canadian deviations, of ISO (International Organization for Standardization) Standard 22159 (first edition, 2007-05-15), entitled *Personal equipment for protection against falls — Descending devices*. The title has been changed for the CSA Group Standard to ensure continuity with previous editions of this Standard. This Standard supersedes the previous edition published in 2012 as CAN/CSA-Z259.2.3 (adopted ISO 22159:2007).

For brevity, this Standard will be referred to as "CAN/CSA-Z259.2.3" throughout.

The ISO Standard was developed by ISO/TC 94/SC 4. The adoption of this ISO Standard as a National Standard of Canada is an important step in the acceptance of design data for safety equipment traded on a worldwide basis. The CSA Technical Committee on Fall Protection determined that ISO 22159 could be used as the basis of the new edition of CAN/CSA-Z259.2.3 as it most closely reflected the committee's perspective on descent control devices and it fosters international harmonization.

In the second edition of CAN/CSA-Z259.2.3, only Type 1 and Type 3 descending devices, as classified by ISO 22159, were deemed suitable for use in the Canadian marketplace. In this, the third edition of the Standard, the CSA Technical Committee on Fall Protection has recognized the increasing use of all 6 types of descending devices in Canada and is accepting Types 1 through 6 for the Canadian marketplace.

This Standard was reviewed for Canadian adoption by the CSA Technical Committee on Fall Protection, under the jurisdiction of the CSA Strategic Steering Committee on Occupational Health and Safety, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

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a) *Standard designation (number);*
b) *relevant clause, table, and/or figure number;*
c) *wording of the proposed change; and*
d) *rationale for the change.*

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Canadian deviations

The following deviations are intended to align with local occupational health and safety practices and to meet the requirements of Canadian workplace regulators.

[Replace the ISO title with the following]

Descent devices

5 Test methods

5.5 Static tests

5.5.3.2

[In the last sentence, replace "mm" with "min"]

5.5.3.4

[In the last paragraph, replace "mm" with "min"]

5.5.6.6

[In the fourth sentence, replace "mm" with "min"]

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INTERNATIONAL STANDARD

ISO 22159

First edition
2007-05-15

Personal equipment for protection against falls — Descending devices

Équipement personnel de protection contre les chutes — Dispositifs de descente

Reference number
ISO 22159:2007(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 22159 was prepared by Technical Committee ISO/TC 94, *Personal safety — Protective clothing and equipment*, Subcommittee SC 4, *Personal equipment for protection against falls*.

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Introduction

Descending devices conforming to this International Standard are intended to be used in conjunction with an appropriate descent line and other equipment, e.g. an appropriate harness or rescue loop and a reliable anchor, to enable a person to descend from one position to another, either on their own or assisted by another person. Typical uses are emergency egress and work positioning. In addition to their primary function of allowing access to a lower point, descending devices and descent lines have a fall protection function.

Descending devices in this International Standard have been divided into six types. Types 1 and 2 are further divided into four classes.

Type 1 descending devices have an integrated descent line and are intended for multiple evacuations to a safe lower place when users do not need to control their descent speed. The descent speed is automatically controlled, i.e. without the need for intervention by the user.

Type 2 descending devices have an integrated descent line and are manually controlled. They are generally more suitable for single person evacuations to a safe lower place when users may need to control their descent speed and may need to stop somewhere on the descent line.

Types 3 and 4 descending devices are not required to have an integrated descent line. The descent line can be fitted to the descending device on site. These types of descending device are equipped with a manually operated descent control device which, when it is let go, will automatically lock to the descent line and stop the descent (hands-free locking element). In addition, type 3 descending devices will “fail to the locked position” and the descent will stop if the descent control device is moved beyond its descent control parameters, e.g. in a panic situation when the user squeezes the descent control device too far (panic locking element).

Types 5 and 6 descending devices do not have a hands-free automatic locking element or a panic locking element. These descending devices rely on the user to stop the descent manually and to lock off manually, too, typically by wrapping the descent line around the descending device to create enough friction to stop movement. These types are also not required to have an integrated descent line: the descent line can be fitted to the descending device on site.

Descending devices types 1 and 2, which are typically intended primarily for emergency egress, have been classified further by performance. A value, called descent energy, is calculated based on the product of the mass of the user, the maximum descent height for the descending device and the number of descents for which the descending device is designed. In practice, descending devices are subjected to different loads, e.g. a descending device for descending 100 passengers from a cable car at a height of 100 m needs to conform to more stringent requirements than a descending device used by a crane driver to descend from a height of 20 m. The descent energy provides an indication of the appropriateness of a descending device and its descent line for a given application. The descent energy may be used to calculate the maximum combination of descent height and number of descents for a particular use. The classes are A, B, C and D, which are explained in more detail within this International Standard.

Type 2 class D descending devices deserve special mention because they are intended for a specific purpose, i.e. for single use emergency egress only, by trained and competent personnel who, as part of their training, have experienced a descent using this type of descending device.

Descent lines are a necessary component in a descending system and need to meet some basic requirements to ensure that they are suitable for use with relevant descending devices. This International Standard therefore includes such basic requirements for descent lines.

This International Standard recognizes that a descending device could not only travel with the user (normal in rope access, for example) but could also in some circumstances be designed to operate from a fixed position (e.g. at the top of the descent). The test methods reflect this. Operating from a fixed position is normal for type 1 descending devices. It is perhaps not so normal for other types, but is possible.

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This International Standard presumes that the manufacturer of the descending device, subsystems or components will, for the sake of consistency and traceability, operate a quality management system which will comply with national and regional regulations in force at the time. Guidance on the form this quality management system may take can be found in ISO 9001.

It is highly advisable that manufacturers claiming conformity of their descending devices with this International Standard have their claims verified by an independent, nationally recognized test organisation.

Note the points below.

— It is essential that users of all types of descending devices and their descent lines are trained and assessed as competent before using them unsupervised. This applies even to the totally automatic descending devices of type 1. It applies particularly to types 5 and 6 descending devices, where any mismanagement could have disastrous results. It is advisable that training be ongoing and not just a one-off at the first introduction to the equipment.

— This International Standard does not encompass all foreseeable uses of descending devices or requirements for all possible descending devices. Manufacturers, specifiers and end users can identify uses for which descending devices that are outside the scope of this International Standard are appropriate.

— The requirements specified are generally minimum requirements.

Annex A provides advice on the packaging of descending devices and Annex B gives functional recommendations for the use of descending devices in the workplace.

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Personal equipment for protection against falls — Descending devices

1 Scope

This International Standard specifies requirements, test methods, marking and information to be supplied by the manufacturer for descending devices. It also specifies some basic requirements for the descent lines to be used with the descending devices.

This International Standard is applicable to automatic and manually operated descending devices intended for use in the workplace in access, egress, work positioning and rescue systems. Various types and classes of descending devices are defined according to function and performance. These descending devices can be used in situations other than the workplace if adequate training and/or supervision are provided.

This International Standard is not intended to apply to descending devices used in leisure activities such as recreational climbing and caving, although its requirements can be useful in specifying such equipment.

NOTE Descending devices conforming to this International Standard can be designed for use by one or two persons simultaneously.

2 Normative references

The following referenced documents are indispensable for the application 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.

ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests*

ISO/IEC 17025, *General requirements for the competence of testing and calibration laboratories*

3 Terms, definitions and classifications

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
anchor point
secure place of attachment to which the descent line or descending device is connected

3.1.2
attachment element
primary point of connection to the descending device, as specified by the manufacturer

3.1.3
automatic descending device
device that enables a person or persons to descend at a controlled rate without any intervention once the descent has commenced

NOTE Automatic descending devices are also known as controlled descent devices.

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