

Australian/New Zealand Standard™

**Industrial fall-arrest systems and
devices**

**Part 1: Harnesses and ancillary
equipment**



AS/NZS 1891.1:2007

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee SF-015, Industrial Safety Belts and Harnesses. It was approved on behalf of the Council of Standards Australia on 23 May 2007 and on behalf of the Council of Standards New Zealand on 6 July 2007. This Standard was published on 31 July 2007.

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Australian Lightweight Vertical Rescue Instructors
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This Standard was issued in draft form for comment as DR 03469.

Australian/New Zealand Standard™

Industrial fall-arrest systems and devices

Part 1: Harnesses and ancillary equipment

Originated in Australia as AS 1891—1976.
Originated in New Zealand as NZS 1661:1962 and NZS 2253:1969.
Previous edition AS/NZS 1891:1995.
Second edition 2007.
Reissued incorporating Amendment No. 1 (October 2007).
Reissued incorporating Amendment No. 2 (May 2008).

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Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 8288 4

PREFACE

This Standard was prepared by the Joint Australian/New Zealand Committee SF-015, Industrial Safety Belts and Harnesses to supersede AS/NZS 1891.1:1995, *Industrial fall-arrest systems and devices*, Part 1: *Safety belts and harnesses*. It is the first in a series of Standards dealing with this area of industrial safety, the full series being as follows:

This Standard incorporates Amendment No. 1 (October 2007) and Amendment No.2 (May 2008). The changes required by the Amendments are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

AS/NZS

1891	Industrial fall-arrest systems and devices
1891.1	Part 1: Harnesses and ancillary equipment (this Standard)
1891.2	Part 2: Horizontal lifeline and rail systems
1891.2	Supplement 1: Horizontal lifeline and rail systems—Prescribed configurations for horizontal lifelines
1891.3	Part 3: Fall-arrest devices
1891.4	Part 4: Selection, use and maintenance

Principal changes from the previous edition of this Standard are as follows:

- (a) The use of belts alone is no longer specified for any purpose. The Standard specifies only full-body or lower body harnesses for potential fall purposes.
- (b) Restraint equipment, belts and lines, have been deleted from the scope.
- (c) The degradation of polyester webbing may now be tested by artificial light exposure only. Two exposure light sources are now permitted.
- (d) An attachment point for full free-fall-arrest may be provided at centre front waist level on a full-body harness.
- (e) All points on the centre-line of both full-body and lower-body harnesses are to be tested for free-fall-arrest.

The work positioning harness specified in the previous edition of this Standard has been renamed a lower-body harness. Note that future editions of this Standard may not specify these harnesses as equipment suitable for arresting a free-fall.

The term 'normative' has been used in this Standard to define the application of the appendix to which it applies. A 'normative' appendix is an integral part of a Standard.

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FOREWORD

The ability of the human body to survive a fall with the minimum chance of serious injury will depend principally on the decelerating forces imposed on the body during fall-arrest and the manner in which those forces are transmitted to the body. These factors have been recognized in the preparation of this Standard in two ways.

Firstly, equipment used to arrest a free-fall, i.e., an unrestrained fall either vertical or down a steep slope, is required to be designed so that forces developed in the supporting lanyard during the fall do not exceed 6 kN, i.e. the deceleration is limited to 6g. Secondly, this level of deceleration is readily survivable provided the person suffering the fall is properly constrained in a harness. There is ample evidence to show that even for relatively short restrained or unrestrained falls, the wearing of a belt only can lead to injuries such as broken ribs, or damage to the kidneys, spleen or lungs. For this reason this Standard envisages that, as a minimum, a person at risk of any fall will wear a harness.

Attention is also drawn to the problem of suspension trauma, the adverse consequences which can arise if a person remains suspended in a harness for any length of time.

AS/NZS 1891.4 gives a more detailed account of suspension trauma together with other requirements and recommendations related to the selection, safe use and maintenance of harnesses, lanyards and other fall-arrest equipment and systems, and should be read in conjunction with manufacturers' instructions.

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Australian/New Zealand Standard
Industrial fall-arrest systems and devices

Part 1: Harnesses and ancillary equipment

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the materials, design, manufacture and testing of harnesses, lanyards, pole straps and associated equipment including connecting devices and personal energy absorbers for industrial restraint and fall-arrest purposes.

Appendices include test methods for equipment items and assemblies, and for component materials.

1.2 APPLICATION

Personal protective equipment designed exclusively for the following purposes is not covered by this Standard:

- (a) Pole top rescue.
- (b) Theatrical flying.
- (c) Total restraint applications (see Note 2).
- (d) Rescue operations.
- (e) Emergency services.

NOTES:

- 1 Users of equipment in Items (a) and (e) are advised to ensure that it has adequate strength to suit the usage. Equipment complying with this Standard may be appropriate for these purposes. Users are advised to check prior to such use.
- 2 Total restraint as referred to in Item (c) is described in AS/NZS 1891.4. For all total restraint applications users are advised to use equipment specified in this Standard for fall-arrest.
- 3 Fall-arrest equipment and components meeting this Standard will have been dynamically tested using a 100 kg mass. Users of greater mass are advised to consult the manufacturer.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard.

AS

- | | |
|------------|---|
| 2001 | Methods of test for textiles |
| 2001.1 | Part 1: Conditioning procedures |
| 2001.4.A02 | Part 4.A02: Colourfastness tests—Grey scale for assessing change in colour |
| 2001.4.B01 | Part 4.B01: Colourfastness test—Determination of colourfastness to daylight of textile materials |
| 2001.4.B02 | Part 4.B02: Colourfastness test—Colourfastness to artificial light—Xenon arc fading lamp test (ISO 105-B02:1994, MOD) |