

Australian/New Zealand Standard™

**Industrial fall-arrest systems and
devices**

**Part 2: Horizontal lifeline and rail
systems**

**Supplement 1: Prescribed
configurations for horizontal lifelines**

(Supplement to AS/NZS 1891.2:2001)



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AS/NZS 1891.2 Supp1:2001

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 16 February 2001 and on behalf of the Council of Standards New Zealand on 26 January 2001. It was published on 20 March 2001.

The following interests are represented on Committee SF-015:

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This Standard was issued in draft form for comment as DR 00283.

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Originated as AS/NZS 1891.2(Int)—1998.
Revised and redesignated in part as AS/NZS 1891.2 Supplement 1: 2001.

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Jointly published by Standards Australia International Ltd, GPO Box 5420, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 3761 1

PREFACE

This Supplement to AS/NZS 1891.2:2001 was prepared by the Joint Standards Australia/Standards New Zealand Committee SF-015, Industrial Safety Belts and Harnesses to provide a set of prescribed configurations deemed-to-comply with the performance requirements of the Standard.

The prescribed configuration tabulations in this Supplement were developed from the results of a research project* jointly funded by BHP Research Pty Ltd and WorkCover New South Wales, and carried out at the Melbourne Research Laboratories of BHP.

* See DAYAWANSA, PH and RALPH, R, Tests on static line systems, *Journal of the Australian Institute of Steel Construction*, Vol 31, No 2, June 1997.

CONTENTS

	<i>Page</i>
1 SCOPE	4
2 GENERAL	4
3 REFERENCED DOCUMENTS	4
4 DEFINITIONS	5
5 GENERAL REQUIREMENTS	5
6 SYSTEM DESIGN PARAMETERS	8
7 HARDWARE REQUIREMENTS	14
8 INSTALLATION	19
9 INSPECTION AND MAINTENANCE	22

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1 SCOPE

This Supplement prescribes a range of system configurations which have been determined by investigation to meet the performance and safety requirements of AS/NZS 1891.2. It also specifies hardware and installation requirements for such systems.

2 GENERAL

A horizontal lifeline system whose configuration and installation meet the requirements of this Supplement together with all other relevant requirements of AS/NZS 1891.2 shall be deemed to comply with that Standard.

NOTES:

- 1 Installers of horizontal lifelines and rails are advised to check whether they are required to meet any certification requirement in the State in which a system is to be installed.
- 2 The prescribed configurations in this Supplement have been derived from a series of full-scale dynamic tests (see Preface), and are designed to provide users with reasonably flexible means of setting up a horizontal lifeline system without recourse to either extensive testing, complex calculation or proprietary systems. Further detail on this testing and derivation can be obtained from the research paper referenced in the Preface.

3 REFERENCED DOCUMENTS

The following documents are referred to in this Supplement:

AS

1353	Flat synthetic-webbing slings
1353.1	Part 1: Product specification
1380	Fibre-rope slings
1380.1	Part 1: Product specification
1666	Wire-rope slings
1666.1	Part 1: Product specification
2317	Collared eyebolts
2319	Rigging screws and turnbuckles
2741	Shackles
3569	Steel wire ropes
3775	Chain slings—Grade T
4497	Roundslings—Synthetic fibre
4497.1	Part 1: Product specification

AS/NZS

- 1891 Industrial fall-arrest systems and devices
- 1891.1 Part 1: Safety belts and harnesses
- 1891.2 Part 2: Horizontal lifeline and rail systems
- 1891.3 Part 3: Fall-arrest devices

NZS

- 5227 Specification for flat lifting slings
- 5227.2 Part 2: Flat woven webbing lifting slings made of man-made fibre for general service

4 DEFINITIONS

For the purpose of this Supplement the definitions in AS/NZS 1891.1 and AS/NZS 1891.2 apply.

5 GENERAL REQUIREMENTS

The components of a typical horizontal lifeline system are illustrated in Figure 1.

Use of the prescribed configurations for a horizontal lifeline set out in this Supplement shall be subject to the following:

- (a) A fall-arrest harness as specified in AS/NZS 1891.1 with—
 - (i) a lanyard assembly (i.e. including a personal energy absorber) meeting the requirements of AS/NZS 1891.1; or
 - (ii) a fall-arrest device meeting the requirements for a Type 2 or 3 device in AS/NZS 1891.3;

shall be worn or used by all users of the system strictly in accordance with manufacturer's instructions for fitting and use.

NOTES:

- 1 The predicted performance of the system assumes that the fall-arrest force in the lanyard will not exceed 6 kN.
 - 2 Not all Type 2 or 3 fall-arrest devices are suitable for use with horizontal lifelines. Users should check with the manufacturer of the device if in doubt.
- (b) The line shall run freely through intermediate supports.
 - (c) Means of passing an intermediate anchorage without complete disconnection from the line shall be used by all users of the system. This is typically achieved by provision of a second lanyard or a dual attachment lanyard similar to that illustrated in Figure 2.
 - (d) The maximum overall length of the line shall be 100 m, and of any one span, 10 m. The minimum overall length of the line and of individual spans shall be limited to the minimum configuration allowed in the Tables given in Clause 6.
 - (e) The number of persons using the system at any one time shall not exceed four and the number using any one span at any one time shall be limited to either one or two depending on the number for which provision has been made as set out in Clause 6.1(a).
 - (f) The line shall be limited to 8, 10 or 12 mm diameter galvanized steel cable of 6 × 24 fibre core construction, Grade 1570 or 1770 in accordance with AS 3569.

NOTE: Use of a cable of a grade different from that specified may result in significantly increased anchorage forces under fall-arrest conditions and is therefore not permitted by this Supplement.

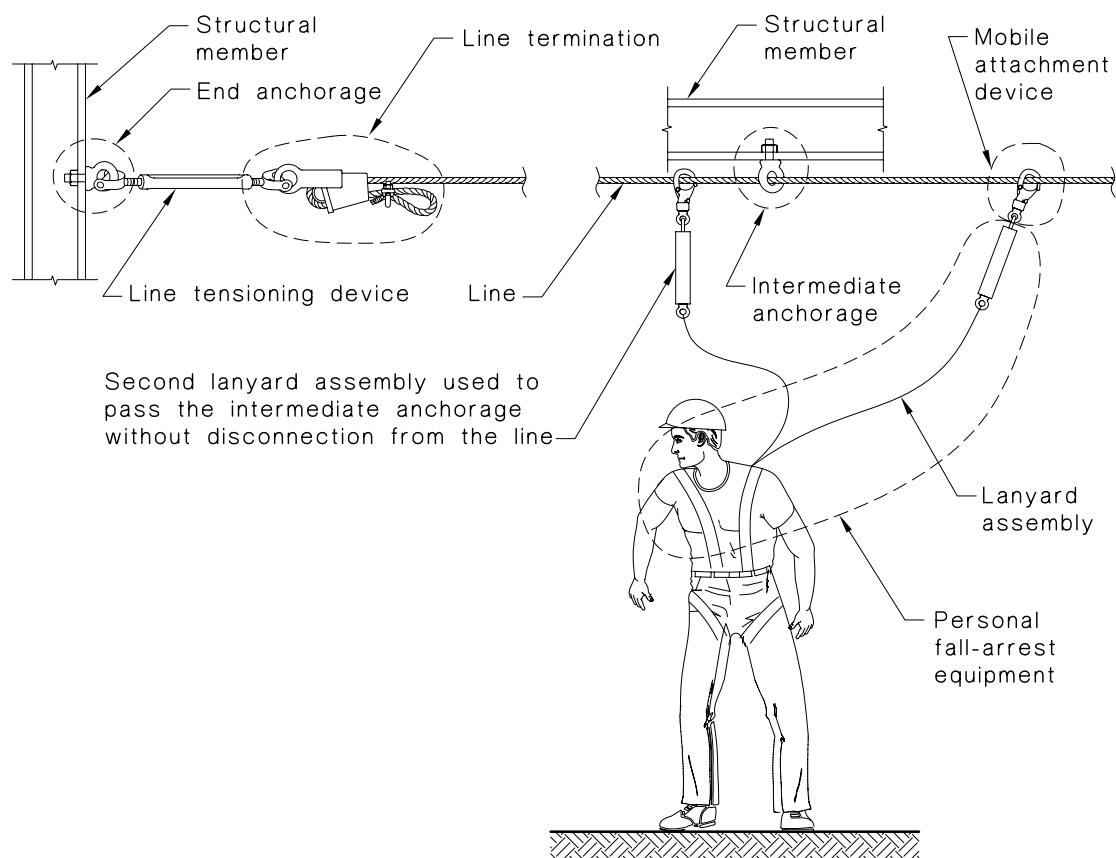
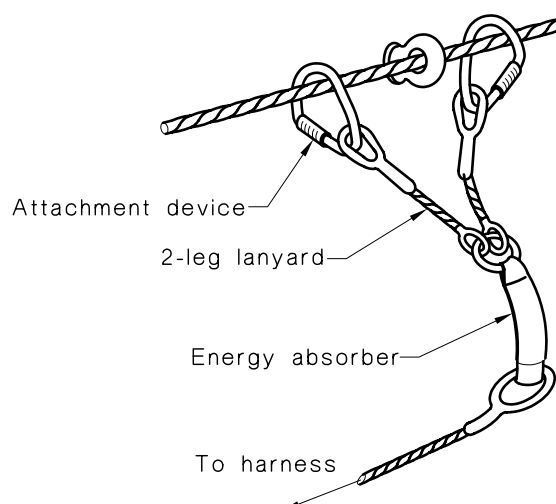


FIGURE 1 TYPICAL ARRANGEMENT OF A PRESCRIBED CONFIGURATION SYSTEM



NOTE: Care needs to be taken that the energy absorber is not 'short-circuited', i.e. by clipping one leg of the dual lanyard back to the harness.

FIGURE 2 DUAL ATTACHMENT LANYARD

- (g) The horizontal deviation of the line at any intermediate support (see Figure 3), shall not exceed 15 degrees. (See also Clause 6.1(c)).

- (h) Line energy absorbers shall not be used.

NOTE: Predicted maximum system deflections under fall-arrest conditions are based on the assumption that line energy absorbers are not used.

- (i) The line shall be rigged so that it is at least 1.5 m above the working platform but preferably above the head height of the people attached to it, and located laterally so that, in the event of a fall, the fall-arrest force cannot act on the cable at an angle greater than 30 degrees to the vertical, measured at right angles to the line as shown in Figure 4.
- (j) The line shall be located so that in the event of a fall remote from the centre of a span, the resulting longitudinal movement or swing during the fall will not bring the user into contact with an obstruction. This should be especially checked in the case of long spans.

- (k) Attachment of lanyards or fall-arrest devices to the line shall be by means of snaphooks, karabiners or pulleys only. Snap hooks and karabiners shall meet the requirements for attachment hardware specified in AS/NZS 1891.1.

NOTE: So as to resist wear from frequent travelling along the line, snaphooks and karabiners should be selected for both the suitability of the material from which they are made and the thickness of that material. The surface finish on these devices should be such as will not damage the line or fittings.

Pulleys, where used, shall meet the requirements specified in AS/NZS 1891.2 for purpose built mobile attachment devices.

- (l) Lanyard lengths shall be selected so as to limit as far as practicable, any free fall to not more than 2 m.

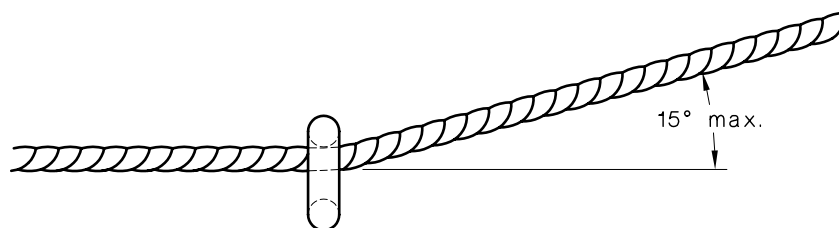


FIGURE 3 DIRECTION CHANGE AT AN INTERMEDIATE ANCHORAGE