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# Australian Standard 1891—1983

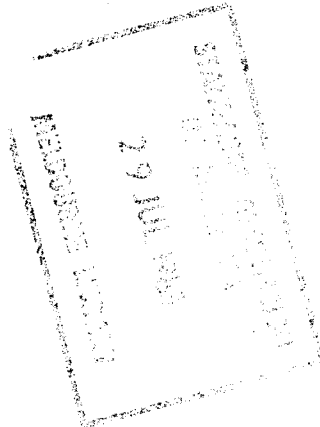
## INDUSTRIAL SAFETY BELTS AND HARNESSSES

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Specifies req.  
materials, des  
and testing of. ...acture  
Industrial safety  
belts and harnesses, and  
ancillary equipment including  
energy absorbers, lanyards, and  
pole straps. Appendices include  
static and dynamic performance  
tests for the various components  
and assemblies.

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The following interests are represented on Committee SF/15:

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Broken Hill Mining Managers Association  
Bureau of Steel Manufacturers of Australia  
Confederation of Australian Industry  
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AUSTRALIAN STANDARD

# INDUSTRIAL SAFETY BELTS AND HARNESSSES

AS 1891—1983

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## PREFACE

This edition of this standard was prepared by the Association's Committee on Industrial Safety Belts and Harnesses under the authority of the Safety Standards Board to supersede AS 1891—1976.

It covers safety belts and harnesses, together with their associated safety lines and rescue lines, designed for use in industrial situations where the worker is at risk, either from falling or from entering confined spaces from which rescue may be necessary.

The recommendations previously included as an appendix to AS 1891—1976 for the storage and inspection and maintenance of safety belts and harnesses have been deleted and superseded by the recommendations in AS 2626, Safety Belts and Harnesses—Selection, Use and Maintenance.

Requirements in this edition are generally in technical agreement with those of the 1976 edition, although some clarification and rearrangements have been effected as a result of experience gained in the application of the earlier edition. Significant matters which arose during the preparation of this edition, caused considerable committee debate, and which, in some instances, have resulted in changes, are as follows:

- (a) Clarification of requirements for all load-bearing webbing.
- (b) Clarification of the permissible alternative methods for fixing metal load-bearing components to webbing.
- (c) Owing to the effects of an arrested fall on the body and the need to prevent excessive energy from being transmitted through small sections of the body, the use of safety belts has continued to be restricted to applications that limit falls to 0.6 m. A harness should therefore be used where a fall cannot be limited to 0.6 m, but does not exceed 1.8 m.
- (d) The elongation limits for safety lines have been retained. Although no value has been specified for hysteresis, a safety line is still required to have minimum short-term recovery so that, having absorbed the energy of a fall by extending, it does not return to its original length. Accordingly, advice on the calculation of hysteresis is included.
- (e) Test requirements for webbing listed in Appendices B, C and D have been aligned with the new edition of AS 1753, Webbing for Restraining Devices for Occupants of Motor Vehicles.

During preparation of this standard, the committee gave consideration to problems that can be experienced with mismatched hardware, i.e. fixings, hooks, and D-rings. Although the number and styles of D-rings has reduced considerably in recent years, it was not considered advisable at this time to standardize on a single D-ring against which 'hooks' would be assessed, and reliance has again been placed on assessment of hardware as supplied, maintenance, and 'good housekeeping' procedures.

Although leather can be used for stiffening and upholstery, it has been reaffirmed that it must not be used for load-bearing components, because of the difficulty of ensuring consistent quality. Accordingly, this standard does not provide for the use of leather for load-bearing components.

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## STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard**  
**for**  
**INDUSTRIAL SAFETY BELTS AND HARNESSSES**

## SECTION 1. SCOPE AND GENERAL

**1.1 SCOPE.** This standard specifies requirements for the materials, design, manufacture and testing of industrial safety belts and harnesses.

It applies to two types of belt and two types of harness, and to their attachments.

Appendices include a performance test for the assembly and a material elongation test. Methods of test for dry and wet breaking loads of material, and resistance of material to sunlight and to artificial light, are also given in appendices.

NOTE: Attention is also drawn to AS 2626.

**1.2 APPLICATION.** This standard applies to safety belts and harnesses used in industry and intended to withstand a free fall of a wearer over specified distances.

The standard lays down mandatory requirements suitable for use in regulations and for assessment of products submitted for approval under the AS Mark scheme.

**1.3 REFERENCED DOCUMENTS.** The following standards are referred to in this standard:

AS 1090	Method for Conditioning Textile Materials for Test
AS 1199	Sampling Procedures and Tables for Inspection by Attributes
AS 1399	Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
AS 1504	Fibre Rope (Three-strand Hawser Laid)
AS 2001	Methods of Test for Textiles
	2001.4.1 Part 4—Colourfastness Tests—Definitions and General Requirements
	2001.4.2 Part 4—Colourfastness Tests—Determination of Colourfastness to Daylight
	2001.4.21 Part 4—Colourfastness Tests—Determination of Colourfastness to Light Using an Artificial Light Source (Mercury Vapour-Tungsten Filament-Internally Phosphor-coated Lamp)
AS 2193	Methods for Calibration and Grading of Force-measuring Systems of Testing Machines
AS 2626	Industrial Safety Belts and Harnesses—Selection, Use and Maintenance
BS 3146	Investment Castings in Metal

U.S. Fed. Test Method Standard No 191A

Federal Standard for Textile Test Methods Method 5660—Colourfastness to Light of Textile Materials; Accelerated Method

**1.4 DEFINITIONS.** For the purpose of this standard, the following definitions apply:

**1.4.1 Body belt**—that part of a safety belt or harness assembly which is fastened around the waist.

**1.4.2 Safety belt**—an assembly of a body belt and load-bearing components, designed for attachment to a safety line.

**1.4.3 Safety harness**—an assembly of a body belt with shoulder and leg straps to prevent the wearer from falling out of the assembly. It is designed for attachment to a safety line or rescue line.

**1.4.4 Pole safety belt**—an assembly of a body belt and load-bearing components, including a pole strap.

**1.4.5 Shoulder and leg straps**—straps which are attached to a body belt to form the harness.

**1.4.6 Pole strap**—that part of a pole safety belt or harness assembly which is passed around a pole or similar structure.

**1.4.7 Rescue line**—a line attached to a safety belt or harness for the purpose of rescue.

NOTE: Rescue lines are not used to absorb free fall (see 'safety line'—Clause 1.4.8). They are used in situations where no risk of free fall exists to maintain contact with the wearer of a safety belt or harness and for rescue purposes should this be necessary.

**1.4.8 Safety line**—a line used to connect the safety belt or harness to an anchorage point in situations where there is risk of free fall.

NOTE: The safety line may be separate and designed for attachment and detachment from a safety belt or harness. Alternatively, a safety line may be permanently attached to and form an integral part of a safety belt or harness assembly.

**1.4.9 Load-bearing component**—any component of a safety belt, harness or safety line, to which a load can be applied by the wearer in normal use, during rescue or rescue practice, or in the event of an arrested free fall.

**1.5 TYPE DESIGNATION.** Safety belts and harnesses and their attachments shall be designated as follows:

- (a) *Pole safety belt* for use by linemen and others who are required to work up poles or in similar situations where the body support is generally under continuous load.
- (b) *General purpose safety belt* for general use in industry where there is a risk of falling and

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