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## ROOF BARS FOR MOTOR VEHICLES



**STANDARDS ASSOCIATION OF AUSTRALIA**  
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The following interests are represented on Committee AU/15:

Australian Consumers Association  
Department of Motor Transport, N.S.W.  
Department of Transport  
Federation of Automotive Products Manufacturers  
Institute of Automotive Mechanical Engineers  
Society of Automotive Engineers—Australasia

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**AUSTRALIAN STANDARD**

# **ROOF BARS FOR MOTOR VEHICLES**

**AS 1235—1983**

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## PREFACE

This edition of this standard was prepared by the Association's Committee on Car Roof Bars to supersede AS 1235—1973.

The standard originated from a request by the Road Safety Council of New South Wales, now disbanded.

This edition incorporates Amendment No 1 issued in August 1974, and includes updating of references quoted in the standard. Some editorial rearrangement has also been carried out.

The request from the Road Safety Council originally related to the carriage of surfboards on car roofs, but as the result of a preliminary conference on the subject it was decided that this should be extended to include the carriage of other items, and the securing of loads.

The standard covers two classes of roof bars and specifies the maximum loads for each class. The test loads are generally equivalent to an acceleration of 4g as related to the specified maximum loads, except that for vertical loads, the test load is reduced to an equivalent of 2g. These test loads, while being sufficient to ensure that bars are safe for ordinary use, are not intended to apply to severe crash conditions. Attention is drawn to the need to operate vehicles carrying roof loads with increased discretion.

Recommendations regarding the securing of loads, being outside the practical scope of the standard, have been included as an appendix.

The standard directs attention to the fact that the maximum loads specified for roof bars may be greater than the maximum loads for car roofs recommended by vehicle manufacturers, and also to statutory requirements regarding the maximum permissible projection from vehicles.

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STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard  
for  
ROOF BARS FOR MOTOR VEHICLES**

**1 SCOPE.** This standard specifies requirements for load-carrying bars intended for mounting on the roofs of motor vehicles by attachment to the roof gutters.

It defines two classes of bars, specifies the maximum loads for the bars, and prescribes the required strength tests and the method of marking.

It does not apply to roof racks.

Recommendations for the securing of loads are given in Appendix B.

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

- AS 1450 Steel Tubes for Mechanical Purposes
- AS 2331 Methods of Test for Metallic and Related Coatings
  - 2331.3.1 Part 3—Corrosion and Related Property Tests—Neutral Salt Spray (NSS) Test

**3 DEFINITIONS.** For the purpose of this standard the following definitions apply.

**3.1 Roof rack**—a rigid frame intended for mounting on a car roof, either directly or by attachment to the roof gutters.

**3.2 Roof bars**—separate front and rear bars and supports, intended for mounting on a car roof by attachment to the roof gutters.

**4 CLASSIFICATION.** Roof bars shall be in two classes as follows:

- (a) *Light duty* . . . . for maximum loads of 17.5 kg per bar (35 kg/two bars).
- (b) *Medium duty* . . for maximum loads of 45 kg per bar (90 kg/two bars).

NOTE: Car manufacturers' recommended maximum loads for car roofs may be less than the maximum loads specified for roof bars.

**5 DESIGN.**

**5.1 General.** The design shall comprise a bar of adequate resistance to bending, together with supports which may be attached to the car roof gutters. Adequate means of attachment shall be provided between the bar and the supports, and the supports and the car, and provision shall be made for securing the attachments.

**5.2 Dimensions of Bars.** The bars may be provided to a fixed width for specific vehicles, or may be adjustable in width. The bars may be provided in different heights up to a maximum of 300 mm, or may be adjustable in height within the range of 100 mm to 300 mm, the height being measured from the centre-line of the bar to the bottom of the support. The maximum height of the bars shall not exceed 300 mm.

**5.3 Width of Feet.** The minimum width of the support feet, measured fore and aft, shall be—

- (a) for light duty bars . . . . . 75 mm; and
- (b) for medium duty bars . . . . . 110 mm.

**5.4 Covering for Feet.** A protective covering shall be provided for the support feet to prevent damage to the roof gutter.

**6 MATERIALS.** The materials shall be at least equivalent to the following:

- (a) *Supports.*
  - (i) Low carbon (mild) steel.
  - (ii) Die-cast aluminium alloy having a minimum elongation of 9 percent, and otherwise conforming to the strength requirements of the support.
- (b) *Bars.* Steel tubing complying with AS 1450.

**7 TEST REQUIREMENTS.**

**7.1 Vertical Downward Force.** When tested for vertical downward strength in accordance with the method described in Appendix A, Paragraph A4, each roof bar, when extended to its maximum height, shall withstand the force shown in Table 1, with maximum deflection as indicated, and without permanent deformation.

**TABLE 1  
VERTICAL DOWNWARD FORCE**

Class of bar	Vertical downward force N	Max. deflection mm
Light duty	330	25
Medium duty	890	25

**7.2 Vertical Upward Force.** When tested for vertical upward strength in accordance with the method described in Appendix A, Paragraph A5, each roof bar, when extended to its maximum height, shall withstand the force shown in Table 2, with maximum deflection as indicated, and without permanent deformation.

**TABLE 2  
VERTICAL UPWARD FORCE**

Class of bar	Vertical upward force N	Max. deflection mm
Light duty	330	25
Medium duty	890	25

**7.3 Fore and Aft Forces.** When tested for fore and aft strength in accordance with the method