

Australian/New Zealand Standard®

Restraint systems for motor vehicles— Performance tests

Method 2: Determination of webbing durability in withdrawing and retracting duty through a sash guide

METHOD

1 SCOPE This Standard sets out the method for determining the durability of seat belt webbing passing through a sash guide system under simulated withdrawing and retracting operations.

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS/NZS

1753 Webbing for restraining devices for occupants of motor vehicles

2596 Seat belt assemblies for motor vehicles

3 DEFINITIONS For the purpose of this Standard, the definitions given in AS/NZS 2596 apply.

4 PRINCIPLE Withdrawing and retracting operations of a seat belt torso strap through a sash guide may result in abrasion of the webbing. Abrasion may cause reduction of strength of the webbing, and the extent of abrasion will be influenced by the details of the components and the geometry of the system. A test for adequate dry breaking tensile strength of the webbing is taken to indicate the suitability of the system with respect to abrasion caused by withdrawing and retracting operations.

5 APPARATUS The following apparatus is required:

- (a) A test rig appropriate to the nominated application of the seat belt assembly as follows:
 - (i) Nominated for a particular vehicle model or range of vehicle models—a test rig to simulate all webbing contact points between the retractor and the last contact point with any component before contact with the wearer within the sash guide system or as provided in the vehicle design.
 - (ii) Others—a test rig to provide the strap and sash guide arrangement given in Figure 1.
- (b) A mechanism to apply a reciprocating action to the webbing through a stroke of not less than 200 mm applied to the torso strap in directions given in Figure 2. The frequency is to be not less than 0.2 Hz and not greater than 0.4 Hz.

- (c) A means of applying a tensile force not less than 18 N in all parts of the strap during the whole of the withdrawing and retracting strokes, but the tensile force is to be zero at one point in the cycle.
- (d) A device to register the number of cycles completed, i.e. not less than 50 000.
- (e) A device to apply a tensile force to the webbing of 14.7 kN or 75 percent of the dry tensile breaking strength, whichever is the greater.

NOTE: Special jaws are necessary to prevent excessive slip of the webbing and breakage of the webbing at the grips.

6 TEST SPECIMEN Test specimens comprising those parts of a restraint assembly or part restraint assembly that are liable to abrasion with the sash guide system shall be dry, unused, and not previously tested. Specimens for determination of dry tensile breaking strength shall be from adjacent webbing.

7 PROCEDURE The procedure shall be as follows:

- (a) Establish the dry tensile breaking strength of the webbing as being that determined in accordance with AS/NZS 1753, by testing the webbing that was adjacent to the test specimen.
- (b) Mount the part of the seat belt assembly to be tested, in the test rig in accordance with the following geometry, as appropriate:
 - (i) Where the seat belt assembly is designed for installation in a nominated vehicle model or range of vehicle models, or where testing a part seat belt, the relative orientation of the sash strap and sash guide system shall be that of the design configuration. Where the design permits the sash guide to pivot, the axis of rotation may be varied from the design axis by an angle not greater than 5 degrees (see Figure 1).
 - (ii) Where the seat belt assembly is not designated for installation in a nominated vehicle model or range of vehicle models, the relative geometry of the sash strap and sash guide, and the point of application of the force F shall conform to Figure 2.

- (c) Withdraw the webbing and allow it to retract in such a manner that the torso strap takes up the angles illustrated in Figure 2 during each working stroke.

The tensile force in all parts of the test strap shall be not less than 18 N at all times during withdrawing and retracting, and shall be zero at one other point in the cycles. The working stroke shall be not less than 200 mm.

The webbing shall be withdrawn and allowed to retract for 50 000 cycles, at a frequency of not less than 0.2 Hz and not greater than 0.4 Hz.

- (d) Remove the webbing and mount it in the tensile testing device in such a manner that the abraded section of the webbing is centred between the upper and lower jaws.
- (e) Subject the webbing to a tensile force (dry) of 14.7 kN, or 75 percent of the initial dry tensile breaking strength as determined in accordance with AS/NZS 1753, whichever is the greater.

8 REPORT The report shall include the following:

- (a) Sufficient description to identify the component and the webbing.
- (b) The initial dry tensile breaking strength of the webbing.
- (c) The force applied under Clause 7(e).

- (d) A statement that the dry tensile breaking strength of the webbing after 50 000 retractor cycles was either less, or not less than the greater of 14.7 kN and 75 percent of the initial dry tensile breaking strength.
- (e) The number of this Australian/New Zealand Standard, i.e. AS/NZS 4475.2.

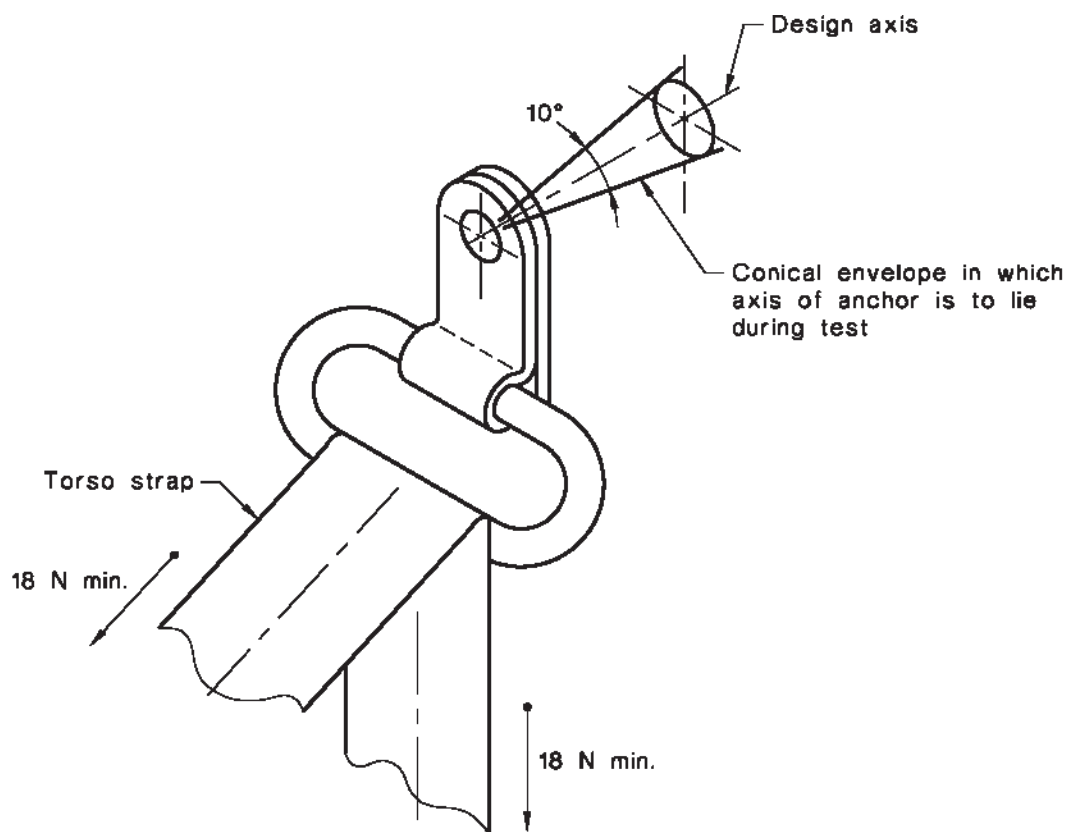


FIGURE 1 PERMITTED DEPARTURE FROM DESIGN AXIS FOR PIVOTING SASH GUIDE (DESIGN CONFIGURATION KNOWN)