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**Tractors and machinery for agriculture —  
Seat belts —**

Part 2:  
**Anchorage strength requirements**

*Tracteurs et matériels agricoles — Ceintures de sécurité —  
Partie 2: Exigences relatives à la résistance des ancrages*

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## Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 3776-2 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 2, *Common tests*.

This first edition of ISO 3776-2, together with ISO 3776-1, cancels and replaces ISO 3776:1989, of which it constitutes a technical revision.

ISO 3776 consists of the following parts, under the general title *Tractors and machinery for agriculture — Seat belts*:

- *Part 1: Anchorage location requirements*
- *Part 2: Anchorage strength requirements*

The following part is under preparation:

- *Part 3: Requirements for assemblies*

## Introduction

Seat belts are used on agricultural machinery to restrain the operator in the seat during normal operation and use. When used on agricultural tractors, seat belts also serve to restrain the operator within the protective zone of the protective structure in the event of an upset. This part of ISO 3776 specifies the minimum seat belt anchorage strength requirements to meet these purposes.

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# Tractors and machinery for agriculture — Seat belts —

## Part 2: Anchorage strength requirements

### 1 Scope

This part of ISO 3776 specifies the strength requirements of the anchorages for pelvic restraint (seat) belts intended to be used by the operators of agricultural tractors and self-propelled machinery.

### 2 Terms and definitions

For the purposes of this document, the following definitions apply.

#### 2.1

##### **anchorage**

provision to transfer forces applied to the seat belt assembly to the structure of the tractor or the machine

#### 2.2

##### **seat belt assembly**

belt, including any buckle, length adjuster, retractor, and means for securing to an anchorage, that fastens across the pelvic area to provide pelvic restraint during operation and roll-over conditions

#### 2.3

##### **seat belt system**

seat belt assembly with anchorages

### 3 Anchorage testing

#### 3.1 Test type

Only static tests for the anchorages are given in this part of ISO 3776.

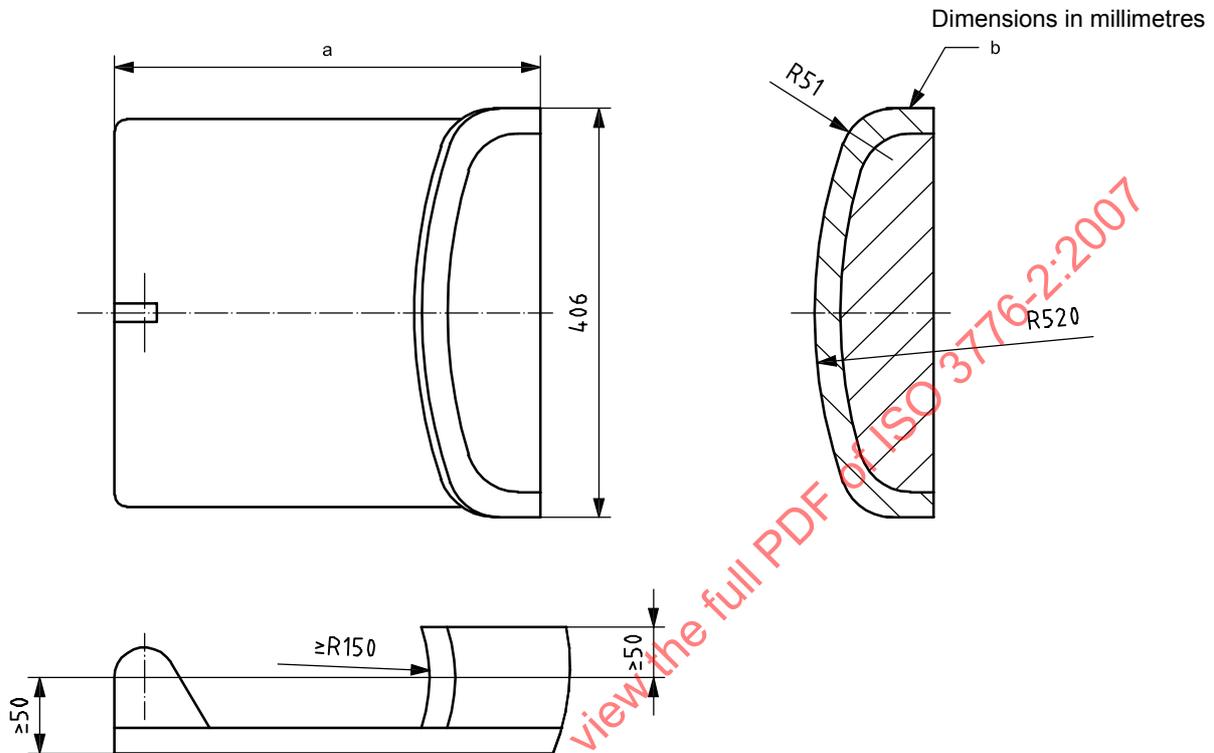
#### 3.2 General

The tests may be carried out either on a shell or on a complete tractor.

The seat and seat belt assembly shall be in position during the tests, fixed to the mounting points on the tractor or test bed using all intermediary fittings (such as suspension, slides, etc.) specified for the complete tractor. No additional non-standard fittings contributing to the strength of construction shall be used.

The anchorages shall be capable of withstanding the loads applied to the seat belt system using a device as shown in Figure 1. The seat belt anchorages shall be capable of these test loads applied with the seat at the seat adjustment mid-position and at one other adjustment position, if such a position is considered by the test station to be the worst case, to ensure that the test condition is met. For a suspended seat, the seat shall be set to the midpoint of suspension travel, unless this is contradictory to a clearly stated instruction by the seat manufacturer. Where special instructions exist for seat setting, these shall be observed and specified in the test report.

After the load is applied to the seat system, the load application device shall not be repositioned to compensate for any change that could occur in the load application angle. The horizontal distance between the point at which the load generation apparatus is attached to the test rig and the nearest seat belt anchorage shall not be less than 1 000 mm.



- a This dimension is optional.
- b Medium density foam rubber, 25 mm thick (canvas covered).

Figure 1 — Traction device

### 3.3 Forward loading

A tensile force shall be applied in a forward and upward direction at an angle of  $45^\circ \pm 2^\circ$  to the horizontal. The seat belt anchorages shall be capable of withstanding a force of 4 450 N. In the event that the force applied to the seat belt assembly is transferred to the tractor chassis by means of the seat, the seat mounting shall be capable of withstanding this force plus an additional force equal to four times the weight of all applicable seat components applied  $45^\circ \pm 2^\circ$  to the horizontal in a forward and upward direction.

### 3.4 Rearward loading

A tensile force shall be applied in a rearward and upward direction at an angle of  $45^\circ \pm 2^\circ$  to the horizontal. The seat belt anchorages shall be capable of withstanding a force of 2 225 N. In the event that the force applied to the seat belt assembly is transferred to the tractor chassis by means of the seat, the seat mounting shall be capable of withstanding this force plus an additional force equal to two times the weight of all applicable seat components applied  $45^\circ \pm 2^\circ$  to the horizontal in a rearward and upward direction.