International Standard 6683

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Earth-moving machinery — Seat belts and seat belt anchorages

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 6683 was developed by Technical Committee ISO/TC 127, *Earth-moving machinery*, and was circulated to the member bodies in May 1980.

It has been approved by the member bodies of the following countries :

Austria	Finland	Portugal
Belgium	France	Romania
Brazil	Germany, F. R.	South Africa, Rep. of
Canada	India	Sweden
Chile	Italy	United Kingdom
Czechoslovakia	Japan	USA
Egypt, Arab Rep. of	Poland	USSR

No member body expressed disapproval of the document.

Earth-moving machinery — Seat belts and seat belt anchorages

1 Scope

This International Standard establishes the minimum performance requirements for seat belts and the fastening elements of seat belts necessary to restrain an operator or rider within a roll-over protective structure (ROPS) in the event of a machine roll-over as defined in ISO 3471.

NOTE — Dynamic seat belt systems are under study. A suitable text will be added when available.

2 Field of application

This International Standard applies to earth-moving machinery fitted with ROPS as specified in ISO 3471.

3 References

ISO 3411, *Earth-moving machinery — Human physical dimensions of operators and minimum operator space envelope.*

ISO 3471, *Earth-moving machinery — ROPS — Laboratory tests and performance requirements.*

ISO 5353, *Earth-moving machinery — Seat index point.*

4 Definitions

4.1 seat belt assembly : Belt including any buckle, length adjustor, retractor, and means for securing to an anchorage, that fastens across the pelvic area to provide pelvic restraint during operating and roll-over conditions.

4.2 anchorage : Provision to transfer forces applied to the seat belt assembly to the machine structure.

4.3 seat belt system : Seat belt assembly with anchorages.

4.4 polyester fibre : Fibres of any long-chain synthetic polymer composed of at least 85 % by weight of an ester of a dihydric alcohol and terephthalic acid.

5 Seat belt system

The seat belt system can contain :

a) an adjustable seat belt assembly;

b) an adjustable seat belt assembly with retractor.

5.1 Belt webbing

The webbing shall have a minimum width of 46 mm. The belt length shall be adjustable for the arctic clothed operator in the 5th percentile to the 95th percentile. See ISO 3411.

The webbing shall have resistance to abrasion, temperature, mild acids, alkalies, mildew, aging, moisture and sunlight equal to or better than that of untreated polyester fiber.

5.2 Belt buckle

It shall be possible to release the buckle with one mittened hand in a single motion. The buckle shall remain closed until it is intentionally opened. The actuation force to open the buckle shall be 75 ± 65 N with a force on the belt loop of 670 ± 45 N.

6 Anchorages

Anchorages shall permit the seat belt assembly to be readily installed or replaced and shall comply with the strength requirements of clause 8.

If the seat does not swivel nor have a suspension system, the seat belt assembly may be anchored to the seat or to the machine at any point within the hatched zones shown in figure 1. For SIP definition, see ISO 5353.

Otherwise the seat belt assembly shall be attached to anchorages on the seat near the rear corners of the seat cushion within the hatched zone shown in figure 1 so that the seat belt assembly moves with the seat cushion at all times.

Belts, cables, or similar flexible devices may be used to transfer the seat belt assembly loads from the seat anchorages to the machine.

7 Metallic components

Metallic seat belt assembly components and anchorages shall be corrosion resistant and free of sharp corners and edges.

8 Performance requirements

The installed seat belt system shall meet the following requirements when loaded in a forward and upward direction at 60° ± 15° angle from the horizontal with the line of force approximately passing through the SIP. (For the SIP definition, see ISO 5353).

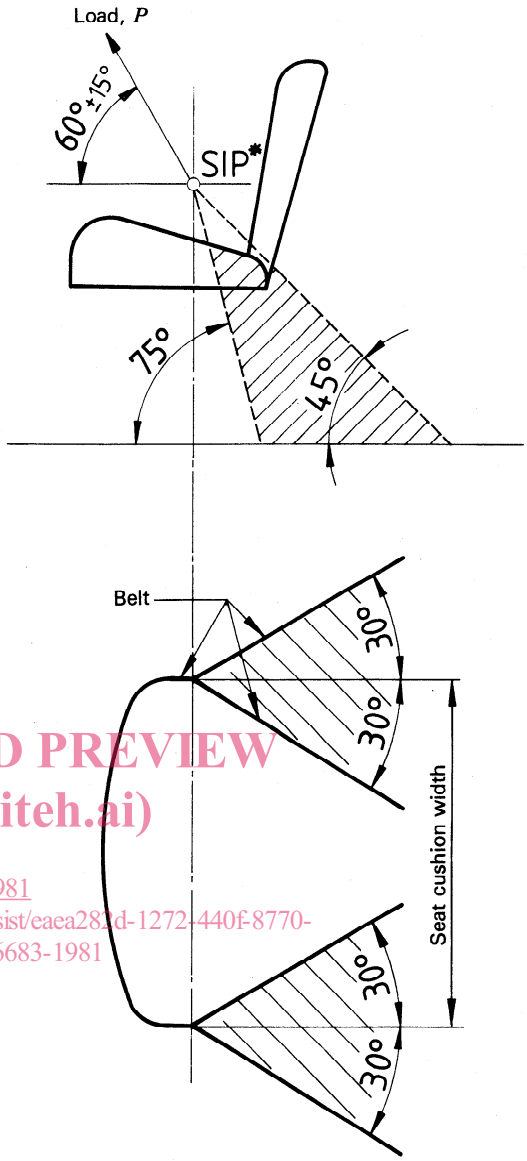
8.1 The buckled seat belt system shall withstand a force of not less than 15 000 N for 10 s minimum.

8.2 The length of the seat belt assembly shall not increase by more than 20 % when subjected to the force in 8.1.

8.3 Permanent deformation of any system component and anchorage area is acceptable under the action of a force as per 8.1. However, there shall be no failure allowing release of the seat belt system, seat assembly, or the seat adjustment locking mechanism.

8.4 The belt buckle shall meet the opening force requirements of 5.2 after being subjected to the force given in 8.1.

8.5 The body block shown in figure 2 is a typical method of load application.



* See ISO 5353

Figure 1 — Seat belt anchorage areas

Dimensions in millimetres

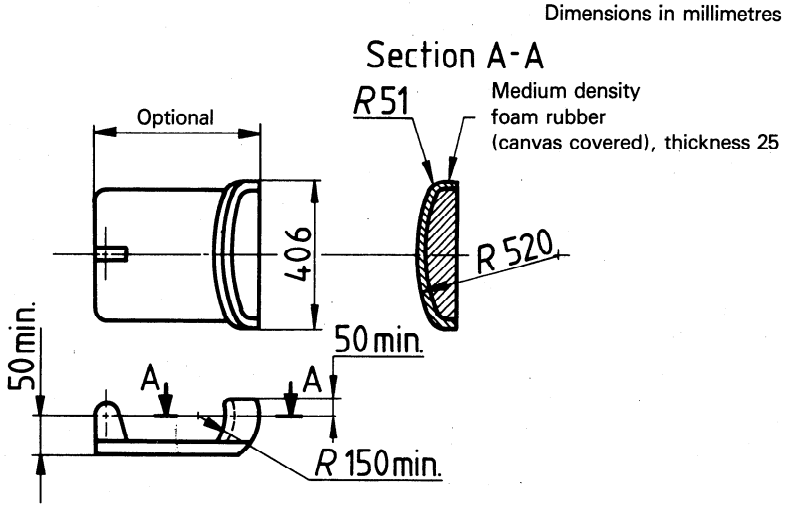


Figure 2 — Body block method of load application