
**Self-propelled machinery for forestry —
Laboratory tests and performance
requirements for roll-over protective
structures —**

**Part 1:
General machines**

*Machines forestières automotrices — Essais de laboratoire et
exigences de performance pour les structures de protection au
retournement —*

Partie 1: Machines communes



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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 8082-1 was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 15, *Machinery for forestry*.

This first edition of ISO 8082-1 cancels and replaces ISO 8082:2003, of which it constitutes a minor revision. Whereas machines having a rotating platform with cab and boom on the platform remain excluded from the scope of this part of ISO 8082, the restructuring of the standard into discrete parts allows those machines to be addressed in ISO 8082-2.

ISO 8082 consists of the following parts, under the general title *Self-propelled machinery for forestry — Laboratory tests and performance requirements for roll-over protective structures*:

- *Part 1: General machines*
- *Part 2: Machines having a rotating platform with a cab and boom on the platform*

Self-propelled machinery for forestry — Laboratory tests and performance requirements for roll-over protective structures —

Part 1: General machines

1 Scope

This part of ISO 8082 establishes a consistent, reproducible means of evaluating the force–deflection characteristics of roll-over protective structures (ROPS) on self-propelled forestry machines under static loading, and prescribes performance requirements for a representative specimen under such loading. It is applicable to forwarders, skidders, feller-bunchers, processors, harvesters and log loaders, as defined in ISO 6814. It is not applicable to machines having a rotating platform with a cab and boom on the platform, which are addressed by ISO 8082-2.

NOTE The requirement levels and testing procedures of this part of ISO 8082 are the same as those of ISO 3471 [2].

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 148-1, *Metallic materials — Charpy pendulum impact test — Part 1: Test method*

ISO 898-1, *Mechanical properties of fasteners made of carbon steel and alloy steel — Part 1: Bolts, screws and studs with specified property classes — Coarse thread and fine pitch thread*

ISO 898-2:1992, *Mechanical properties of fasteners — Part 2: Nuts with specified proof load values — Coarse thread*

ISO 3164, *Earth-moving machinery — Laboratory evaluations of protective structures — Specifications for deflection-limiting volume*

ISO 6814, *Machinery for forestry — Mobile and self-propelled machinery — Terms, definitions and classification*

3 Terms, definitions and symbols

For the purposes of this document, the following terms, definitions and symbols (see Table 1) apply.

3.1
roll-over protective structure
ROPS
system of structural members whose primary purpose is to reduce the possibility of a seat-belted operator being crushed should the machine roll over

NOTE These structural members include any subframe, bracket, mounting, socket, bolt, pin, suspension or flexible shock absorber used to secure the system to the machine frame, but exclude mounting provisions that are integral with the machine frame.

3.2
deflection-limiting volume
DLV
orthogonal approximation of a large, seated, male operator as defined in ISO 3411 wearing normal clothing and a protective helmet

3.3
falling-object protective structure
FOPS
system of structural members arranged in such a way as to provide operators with reasonable protection from falling objects (e.g. trees, rocks)

3.4
operator protective structure
OPS
system of structural members arranged in such a way as to minimize the possibility of operator injury from penetrating objects (such as whipping saplings, branches and broken winch lines)

3.5
simulated ground plane
SGP
flat surface on which, after rolling, a forestry machine is assumed to come to rest

3.5.1
lateral simulated ground plane
LSGP
for a machine coming to rest on its side, the plane 15° away from the DLV about the horizontal axis within the plane established in the vertical plane passing through the outermost point

See Figure 1.

NOTE The LSGP is established on an unloaded ROPS and moves with the member to which load is applied while maintaining its 15° angle with respect to the vertical.

3.5.2
vertical simulated ground plane
VSGP
<rollbar ROPS> for a machine coming to rest in an upside-down position, the plane defined by the top cross-member of the ROPS and that front (or rear) part of the machine likely to come in contact with flat ground at the same time as the ROPS and capable of supporting the upside-down machine

NOTE The VSGP moves with the deformed ROPS.

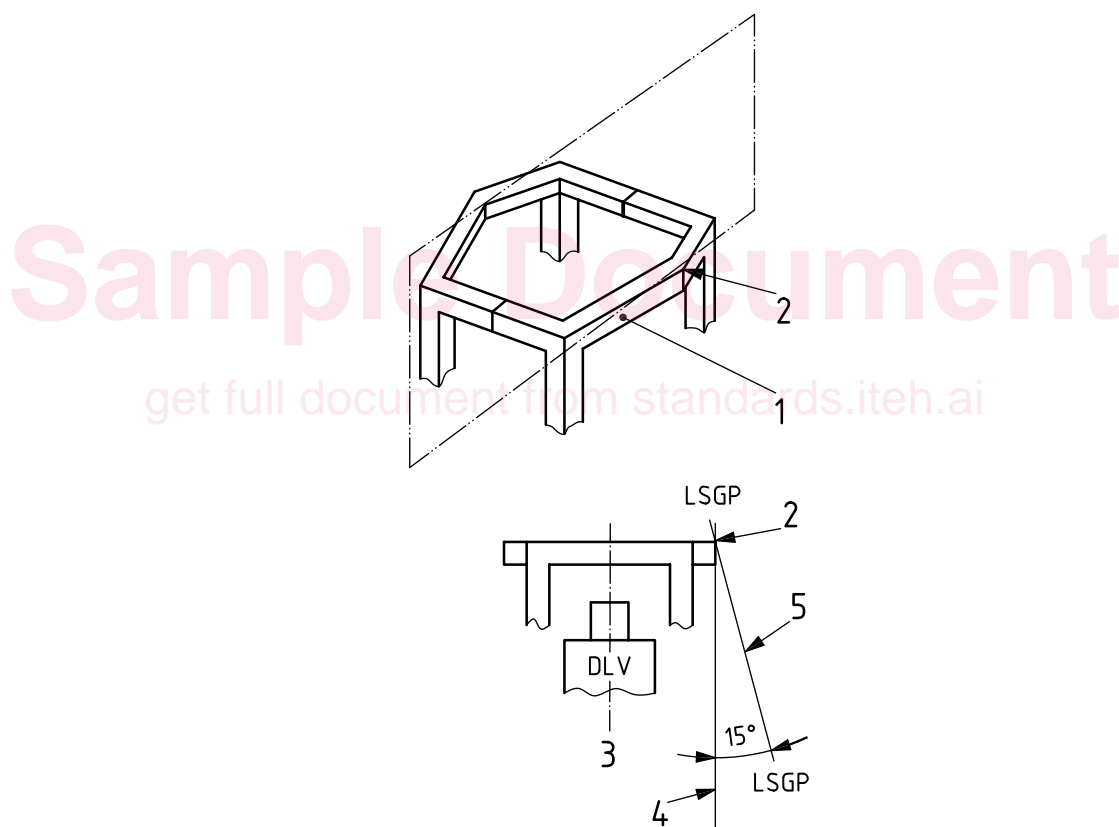
3.6 machine mass

m

maximum mass declared by the manufacturer, including attachments in the operating condition and with tools, ROPS and all reservoirs filled, but excluding towed equipment (e.g. chippers, planters, discs) and any load that could be carried on the machine

Table 1 — Symbols

Symbol	Description	Unit
<i>U</i>	Energy absorbed by the structure, related to machine mass	J
<i>F</i>	Force	N
<i>m</i>	Machine mass	kg
Δ	Deflection of ROPS	mm



Key

- 1 upper ROPS member to which the lateral load is applied
- 2 outermost point from the end view of member (1)
- 3 vertical plane parallel to the machine longitudinal centreline through line (4)
- 4 vertical line through point (2)
- 5 lateral simulated ground plane

Figure 1 — Determination of lateral simulated ground plane (LSGP)