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**Machinery for forestry — Saw chain  
shot protective windows — Test  
method and performance criteria**

*Machines forestières — Ecran de protection contre la projection  
d'éléments de scies à chaîne — Méthodes d'essai et critères de  
performance*



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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

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

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

On the basis of a risk analysis, the types of saw chain breakage can be determined and a saw chain shot protective window selected that provides protection against these risks.

Saw chain shots can be generated if the saw chain is broken on the upper or lower side of the guide bar as well as when broken at the nose sprocket. ISO 11837 provides requirements for a saw chain guarding system that provides protection against saw chain breakage on the cutting (lower) side of the bar. When a saw chain is broken on the upper side or at the nose sprocket, the guarding system according to ISO 11837 does not protect from saw chain shots generated in the direction of the guide bar seen from position of the drive sprocket.

This document establishes a test method and performance criteria for windows intended to provide protection against saw chain shot.

The test apparatus specified in this document is designed to simulate the situation in which the saw chain is broken. The end of the saw chain passes the drive sprocket in the guide bar plane. At different saw chain speeds and combinations of distance to the saw chain breakage, the break force, guide bar geometry and saw chain preload will throw the saw chain in a curve, producing a whiplash that can create a saw chain shot.



# Machinery for forestry — Saw chain shot protective windows — Test method and performance criteria

**CAUTION** — The test method specified in this document involves the use of processes which can lead to a hazardous situation. The test creates saw chain shots. Under no circumstances shall the test be performed without the protective enclosure for the test apparatus in place. The protective enclosure is only to be removed when rotating parts are standing still.

## 1 Scope

This document specifies a test method and corresponding performance requirements for saw chain shot protective windows on forestry machines equipped with a chain saw for cutting, harvesting or processing as defined in ISO 6814. It also applies to machines that have been modified to perform cutting, harvesting or processing (such as excavator) with a chain saw cutting attachment.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 536, *Paper and board — Determination of grammage*

ISO 11837, *Machinery for forestry — Saw chain shot guarding systems — Test method and performance criteria*

EN 13984, *Flexible sheets for waterproofing — Plastic and rubber vapour control layers — Definitions and characteristics*

## 3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

### 3.1

#### **saw chain shot**

object flying with high speed and consisting of one or more parts (drive links, side links, cutters) of a broken saw chain

### 3.2

#### **relevant saw chain shot**

*saw chain shot* ([3.1](#))

- consisting of an assembly of one or more pieces of saw chain joined by up to two rivets;
- consisting of no more than one assembly (excluding additional loose parts of saw chain generated during the breakage event);
- that does not hit the test sample clearly sideways; and