
**Machine tools — Environmental
evaluation of machine tools —**

**Part 5:
Principles for testing woodworking
machine tools with respect to energy
supplied**

*Machines-outils — Évaluation environnementale des machines-
outils —*

*Partie 5: Principes d'essai des machines-outils pour le travail du bois
concernant l'énergie fournie*



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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).

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).

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.

This document was prepared by Technical Committee ISO/TC 39, *Machine tools*.

This document is intended to be used in conjunction with ISO 14955-1 and ISO 14955-2.

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.

A list of all parts in the ISO 14955 series can be found on the ISO website.

Introduction

As environmental impact is a common challenge for all products and natural resources become scarce, environmental performance criteria for machine tools need to be defined and the use of these criteria need to be specified.

Woodworking machine tools are complex products for industrial use to manufacture workpieces ready for use or semi-finished products. Their environmental impact includes waste raw material, use of auxiliary substances such as lubricants and other material flows as well as conversion of electrical energy into heat, dissipation of heat to the ambient or heat exchange by fluids and eventually the use of other resources such as compressed air.

Based on relevance considerations, the ISO 14955 series is focussed on environmental impacts during the use phase.

The performance of a machine tool as key data for investment is multi-dimensional regarding its economic value, its technical specification and its operating requirements which are influenced by the specific application. The energy supplied to the same machine tool can vary depending on the workpiece being manufactured and the conditions under which the machine tool is operated. Therefore, the environmental evaluation of a machine tool cannot be done without considering these aspects.

Machine tools — Environmental evaluation of machine tools —

Part 5:

Principles for testing woodworking machine tools with respect to energy supplied

1 Scope

This document specifies technical requirements for testing procedures for evaluation of energy supplied during use phase for the design of machine tools to process wood and materials with similar physical characteristics to wood.

This document, along with ISO 14955-1 and ISO 14955-2, covers all significant energy requirements relevant to woodworking machine tools, when they are used as intended and under the conditions foreseen by the manufacturer/supplier.

This document defines relevant operating states, optional shift regimes and optional machine tool activities for several types of woodworking machine tools.

This document also applies to peripheral devices which are supplied as an integral part of the machine. This document also applies to machine tools which are part of an integrated manufacturing system where the energy required is comparable to those of machine tools working separately.

This document applies to the following woodworking machine tools:

- NC boring and routing machines;
- horizontal beam panel sawing machines;
- vertical panel sawing machines;
- edge banding machines fed by chains;
- wide belt calibrating and sanding machines;
- four-sided moulding machines;
- tenoning and/or profiling machines;
- foiling/laminating machines;
- dimension saws and circular saw benches;
- single spindle vertical moulding machines (toupie);
- surface planing, thickness planing, combined surface/thickness planing machines;
- band sawing machines;
- combined machines;
- multi-blade rip-sawing machines;
- presses and bending presses;

— mounting presses.

A list of energy efficiency improvements for woodworking machine tools is given in [Annex A](#).

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 14955-1, *Machine tools — Environmental evaluation of machine tools — Part 1: Design methodology for energy-efficient machine tools*

ISO 14955-2:2018, *Machine tools — Environmental evaluation of machine tools — Part 2: Methods for measuring energy supplied to machine tools and machine tool components*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14955-1, ISO 14955-2 and the following 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 numerically controlled boring and routing machine NC boring and routing machine

integrated fed machine designed for the machining of workpieces by the use of milling and/or boring tools having at least two orthogonal axes programmable by the user (e.g. X, Y) for positioning and/or machining, where the axes operate in accordance with a NC work programme

[SOURCE: ISO 19085-3:2017, 3.1, modified — Note 1 to entry and the examples have been deleted.]

3.2 horizontal beam panel sawing machine

machine, designed for cutting panels, fitted with one travelling saw carriage per cutting line incorporating one or more circular saw blades

[SOURCE: ISO 19085-2:2017, 3.1, modified — Note 1 to entry has been deleted.]

3.3 vertical panel sawing machine

machine designed for cutting panels where the workpiece is supported in a near vertical plane during cutting and where the saw unit is mounted in front of the workpiece support

[SOURCE: ISO 19085-4:2018, 3.1, modified — Note 1 to entry has been deleted.]

3.4 edge banding machine fed by chains

machine designed for banding in one pass the edge band on one end of the workpiece (single end edge banding machine) or on both ends of the workpiece (double end edge banding machine), consisting of an edge banding zone with various units (e. g. heating, bonding, and pressing for flexible or solid edges) and of a zone for additional operations such as snipping, trimming, milling, sanding, polishing, chamfering etc., in addition the edge banding zone, can be preceded by a sizing/profiling zone

[SOURCE: ISO 18217:2015, 3.1, modified — Note 1 to entry and Figure 1 have been deleted.]