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Machine tools — Environmental evaluation of machine tools —

Part 1: Design methodology for energy-efficient machine tools

Machines-outils — Évaluation environnementale des machines-outils —

Partie 1: Méthode de conception pour l'efficacité énergétique des machines-outils

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Foreword

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

This second edition cancels and replaces the first edition (ISO 14955-1:2014), which has been technically revised with the following changes:

— the former Annexes A and B have been combined into a new Annex A, on energy efficiency improvements, which includes woodworking machine tools.

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 as natural resources become scarce, environmental performance criteria for machine tools need to be defined and the use of these criteria specified.

Machine tools are complex products for industrial use to manufacture parts ready for use or semi-finished products. 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. Therefore, the same machine tool can show quite different energy supplied to the machine tool depending on the part which is being manufactured and the conditions under which the machine tool is operated. Therefore, the environmental evaluation of a machine tool cannot be considered in isolation from these considerations.

This document proposes to analyse machine tools considering the delivered functions, in order to highlight the commonalities in the huge variety of existing machine tool types. Machine tool components that realize the various functions are objects of specific improvements, keeping in mind the application of the system under evaluation. These improvements are subject for quantification, together with the overall system design to achieve a product with an improved environmental performance. The approach specified in this document is also intended to support environmental improvements on a multi-national level and across different manufacturers/suppliers and users.

Based on a list of positive environmental features which can be built into a machine tool, the performance of the product is intended to be evaluated in order to quantify the environmental improvements achieved over a defined period.

This document provides guidelines for the design and engineering of machine tools with reduced environmental impact, focusing on the energy supplied during the use stage.

Machine tools might have a significant influence on the environmental performance of the manufactured products.