

ICS 25.120.10

CCS J 62



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 40808.4-2026

**Environmental evaluation of machine tools - Part 4: Principles
for measuring metalforming machinery with respect to energy
efficiency**

机床环境评估 第4部分：锻压机械能效测量原则

(English Translation)

Issued on: February 27, 2026

Implemented on: September 1, 2026

Issued by: State Administration for Market Regulation

Table of Contents

Preface
Introduction
1 Scope
2 Normative References
3 Terms and Definitions
4 Measurement program's corresponding operating status
4.1 Power-off running state
4.2 Main switch on/operating status
4.3 Auxiliary drive device in operation status
4.4 Main drive unit in operation status
4.5 Production Preparation Mode Operation Status
4.6 Processing Operation Status
4.7 Mold Changing Operation Status
4.8 Typical Results of Power Measurement
5 Energy supply assessment for different types of machine tools
5.1 General Rules
5.2 Energy Supply for the Press
5.3 Energy supply for the bending machine
5.4 Energy supply for the pipe bending machine
5.5 Energy supply for rotary head press
5.6 Energy Supply of Laser Cutting Machine Tools
5.7 Energy supply for auxiliary devices
6 Report
Appendix A (Informative) Hydraulic Press

Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents".

Drafting.

This document is Part 4 of GB/T 40808 "Machine Tool Environmental Assessment". GB/T 40808 has already published the following parts.

---Part 1: Energy-Saving Design Methods for Machine Tools;

---Part 2: Methods for measuring energy consumption of machine tools and machine tool components;

---Part 3: Principles for Energy Efficiency Testing of Metal Cutting Machine Tools;

---Part 4: Principles for measuring the energy efficiency of forging and pressing machinery.

This document is modified to adopt ISO 14955-4:2019 "Machine tools - Environmental assessment - Part 4: Metal forming machine tools and laser processing machine tools".

The principle of energy measurement in a bed.

The technical differences between this document and ISO 14955-4:2019, and the reasons therefor, are as follows.

---The test specimen material was changed from SPCC, DC01, and 1033 to cold-rolled seamless steel pipe (see Table 8 in 5.4.5) to conform to my country's steel material standards.

Requirements. Standardize testing conditions;

---The specimen material was changed from SPCC, DC01, and 1033 to Q235A cold-rolled steel sheet to meet my country's steel material requirements and standardize testing.

Test conditions (see Table 10 in 5.5.5);

---The specimen material was changed from SPCC, DC01, and 1033 to Q235A cold-rolled steel sheet to meet my country's steel material requirements and standardize testing.

Test conditions (see Table 12 in 5.6.5).

The following editorial changes have been made to this document.

---To align with existing standards, the standard title has been changed to "Machine Tool Environmental Assessment Part 4: Principles for Measuring the Energy Efficiency of Forging Machinery";

---The definition source for laser cutting machine tools (see 3.9 of ISO 14955-4:2019) has been removed, and the definition example for tools/molds has also been removed.

(See 3.13 of ISO 14955-4:2019);

---Added mentions of formulas (E.1) and (E.2) (see E.2.1).

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document was proposed by the China Machinery Industry Federation.

This document is under the jurisdiction of the National Technical Committee on

Standardization of Forging and Pressing Machinery (SAC/TC220).

Introduction

As natural resources become increasingly scarce, environmental impact has become a common issue that all products must address. Therefore, it is necessary to formulate and promote [the relevant policies/measures].

Environmental assessment standards for machine tools.

Machine tools are industrial machines used to manufacture parts, semi-finished products, and complex industrial products. Their environmental impact includes wasting raw materials and lubrication...

The use of auxiliary substances such as media and other fluid materials, as well as the conversion of electrical energy into heat energy, the dissipation of heat into the atmosphere, or heat exchange through fluids.

Alternatively, use other resources, such as compressed air.

Based on relevance considerations, the GB/T 40808 series of standards for machine tools focuses on the environmental impact during the usage phase and is proposed to be implemented by five departments.

Composed of components.

---Part 1: Energy-Saving Design Methods for Machine Tools. The aim is to provide methods for reducing the environmental impact of energy consumption during machine tool operation.

Machine Tool Design and Manufacturing Guidelines;

---Part 2: Methods for Measuring Energy Consumption of Machine Tools and Machine Tool Components. The purpose is to provide necessary methods for measuring the energy consumption of machine tools and machine tool components.

Parameters and calculation methods;

---Part 3: Principles for Energy Efficiency Testing of Metal Cutting Machine Tools. The purpose is to provide guidelines for energy efficiency testing of metal cutting machine tools as specified in GB/T 40808.1 and GB/T 40808.2.

Application principles and methods in machine tools;

---Part 4: Principles for Measuring the Energy Efficiency of Forging Presses. The purpose is to provide the standards for measuring the energy efficiency of forging presses as specified in GB/T 40808.1 and GB/T 40808.2.

Application principles and methods in machinery;

---Part 5: Energy Efficiency Testing Principles for Woodworking Machine Tools. The purpose is to provide guidelines for energy efficiency testing of woodworking machine tools according to GB/T 40808.1 and GB/T 40808.2.

Application principles and methods in bed.

The key data for investing in machine tools are multifaceted, including their economic value, technical specifications, and operational requirements, which are influenced by the actual application.

The energy supplied to the same machine tool will vary depending on the workpiece being manufactured and the machine tool's operating conditions. Therefore, if these factors are not considered...

Without this information, it is impossible to conduct an environmental assessment of the machine tool.

Machine tool environmental assessment Part 4: Principles for Measuring the Energy Efficiency of Forging Machinery

1 Scope

This document specifies the technical requirements and measures for energy testing procedures adopted by personnel designing, manufacturing, and supplying forging machinery, in order to obtain...

Repeatability data of the energy supplied under specified conditions. Furthermore, this document specifies a method for quantifying the energy supplied to the components.

The proportion of machine tools is determined according to the functions described in GB/T 40808.1-2021.

Together with GB/T 40808.1-2021 and GB/T 40808.2-2025, this document covers hydraulic (servo) and mechanical (servo) pressure.

The demand for rotary head presses, bending machines, pipe bending machines, and laser cutting machine tools when used as intended and under conditions foreseen by the manufacturer.

It has energy. An example of how to perform an energy assessment for a metal forming machine tool is given in the appendix.

This document applies to the mechanical transmission of force or the use of lasers to transmit energy, thereby enabling the transmission of force through components mounted on or driven by sliders, punches, or beams.

Machine tools that use moving molds to cut, shape, or process metal or other materials. The size range of these machine tools covers everything from small to large.