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

GB/T 46618-2025

**Determination of the operating power consumption of digital
printing devices**

数字印刷设备运行功耗的测定

(English Translation)

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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 modified to adopt ISO 20690:2018 "Printing technology - Determination of power consumption of digital printing equipment".

Compared with ISO 20690:2018, this document has undergone the following structural adjustments.

---The paragraphs have been changed to sections, and section numbers have been added (see Chapter 4, Appendix A, and Appendix B);

---Move the last paragraph of A.3.1 to A.3.2 (see Appendix A).

The technical differences between this document and ISO 20690:2018, and the reasons therefor, are as follows.

---The normative reference to ISO 12647-8:2012 has been replaced by the informative reference to GB/T 17934.8-2021, and the requirement clauses are as follows.

The clause was changed to a recommended clause; and the contradictory phrase "and may not comply with ISO 12647-8" was deleted (see 4.1.5).

---IEC 60204-1 has been replaced with the normatively referenced GB/T 5226.1 to adapt to my country's technical requirements (see 4.2.1);

---The Fogra test document has been replaced with the standard test diagram specified in Appendix A of GB/T 41975-2022 to adapt to my country's technical standards.

Improve technical conditions and increase operability (see 4.3.1);

---ISO 12647-1 and 17934.8-2021 have been replaced by the normatively referenced GB/T 17934.1 and GB/T 17934.8-2021, respectively.

ISO 12647-8:2012, to adapt to my country's technical conditions (see 4.3.1.2).

The following editorial changes have been made to this document.

---To align with existing standards, the standard name has been changed to "Determination of Operating Power Consumption of Digital Printing Equipment";

---Note added to the term "energy efficiency" (see 3.24);

---The description of the Fogra test file in the "Note" has been deleted (see 4.3.1.2).

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 Printing Machinery (SAC/TC192).

Introduction

Operating cost estimates for digital printing equipment typically include energy consumption calculations. However, due to the lack of reference standards for energy consumption calculations, it is currently impossible to...

Comparison of line energy consumption.

Estimating energy consumption solely based on the machine's connected load is a common industry practice. However, this is not a very reliable method.

This is because, in many cases, calculated values (such as 70% power consumption) do not reflect the actual usage and energy consumption of the machine.

The actual power consumption often differs significantly from the estimated value. The above method cannot compare power consumption data between different devices because the calculations did not follow certain procedures.

A generic architecture that does not take into account the effects of peripheral devices such as infrared (IR) or ultraviolet (UV) drying equipment, as well as measurement cycles.

This document specifies the measurement requirements for parameters needed to estimate energy efficiency (e.g., 1000 A4 sheets/kW·h), which correspond to specific...

The actual energy consumption of the machine combination.

This document specifies a method for estimating the energy efficiency of production digital printing presses (also known as professional digital printing presses). Digital printing systems the system manufacturer needs to declare whether its system is suitable for use as a production digital printing press; if so, this document applies.

Standards for calculating the energy consumption of traditional sheet-fed and web offset printing presses and office equipment already exist and are widely used; therefore, this document does not.

It is applicable to calculating the energy efficiency of traditional sheet-fed and roll-fed offset printing machines or office equipment.

The universality of accurate and verifiable energy consumption data will enable printing machinery buyers, printers, and their customers to evaluate production-ready digital printing systems.

The energy efficiency of flashing the firmware. However, users of this document should understand that efficiency does not determine the quality acceptance level of the expected output that the customer may require.

Power consumption is a crucial component of all output requirements and quality standards, which are essential for maintaining the quality and reproducibility required by print buyers.

A necessary condition for reproducibility. Energy efficiency is reported in various ways, such as the number of prints per kilowatt-hour, or the number of kilowatt-hours required to produce a specific quantity of printed matter.

Watt-hour energy. This information can be used for.

---Assess the power consumption and energy efficiency of the machine, including

peripheral devices;

---Estimate the operating costs of the investment plan;

--- Benchmarking the energy efficiency of production-type digital printing presses;

---Measure the energy efficiency improvement of digital printing equipment over time or for specific process changes;

---Provide relevant data to help the company apply for environmental subsidies when switching to more energy-efficient equipment.

This document defines how to calculate the power requirements of digital printing equipment, thereby calculating its energy efficiency.

When comparing results obtained according to this document, ensure that the equipment being compared is configured to use comparable printing technologies, processes, and equipment.

To produce the same print quality. This document may not be applicable to all devices, such as continuously evolving equipment. As technology advances, this document...

The document will be revised.

Measurement of power consumption during operation of digital printing equipment

1 Scope

This document specifies the methods for measuring the power consumption of narrow-format and wide-format production digital printing presses under different operating modes, and specifies the methods based on two...

Methods for comparing energy efficiency data using equipment combinations of one or more production modes. Best Quality (BQ), Best Productivity (BP), or other optional methods.

combination.

This document applies to production digital printing presses.

This document is not applicable to measuring the power consumption of individual device components (such as servo motors, fans, compressors, control boards, etc.), nor is it applicable to components including...

Specialized digital printing machines for fabric printing or machines that rely on additional processes (such as ceramic making) to produce printed materials.