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

GB/T 46619-2025

**Determination of the energy consumption of digital printing
devices including transitional and related modes**

数字印刷设备包括过渡模式和相关模式能耗的测定

(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 21632:2018 "Printing technology - Digital printing equipment, including transition and related modes - Energy consumption".

Measurement.

Compared with ISO 21632:2018, 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, Appendix B and Appendix C).

The technical differences between this document and ISO 21632:2018, and the reasons therefor, are as follows.

---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);

---ISO 12647-1 has been replaced with the normatively referenced GB/T 17934.1 to adapt to my country's technical requirements (see 4.3.1.2);

---The standard test diagram specified in Appendix A of GB/T 41975-2022 replaces the specification in B.2 of ISO/IEC 24734:2014.

The test documents were adapted to my country's technical conditions to increase operability (see 4.3.1.2).

The following editorial changes have also been made to this document.

---To align with existing standards, the standard title has been changed to "Determination of Energy Consumption of Digital Printing Equipment, Including Transitional and Related Modes";

---ISO 20690:2018 has been replaced by GB/T 46618-2025 (see Chapter 3 and 4.3.2.1), which is cited in the informational reference.

---The term "digital printing press" has been amended to include a note (see 3.1);

---ISO 12647-8:2012 has been replaced by GB/T 17934.8-2021 (see 4.1.9), which is cited as informational.

---Editing error corrected (see 4.5.4.2).

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

The energy requirements of digital printing equipment vary significantly depending on technology, output format, and productivity and quality expectations. Run length the overall energy consumption is affected; therefore, the energy consumption of equipment used for relatively short operating lengths is accompanied by a relatively high amount of transitional energy consumption, including the completion of printing operations.

The surge power required for operation. During frequent transitions between production printing modes, operational switching can impact overall energy consumption.

For short-run operations, the overall energy demand is comprised of transitional energy consumption (including surge energy consumption) and standby energy consumption (including preventative maintenance).

The proportion will be quite large. This means that in order to obtain accurate energy consumption data for the printing industry, guidelines need to be developed to help stakeholders.

Consumers need to accurately calculate the energy consumption of production-type digital printing equipment, considering the different modes of operation (besides production printing) and their role in overall energy consumption.

Playing a vital role. This includes the production of signage and displays, commemorative prints, photo albums, and similar high-value on-demand printing (narrow and wide formats).

Digital printing press.

This document provides a guide for measuring production digital printing presses of any format, including their modes (except for production printing modes).

External components play an important role in overall energy consumption.

This document provides energy efficiency data corresponding to the energy consumption of digital printing equipment, which can be used to understand different shifts, printing materials, and other factors.

He describes various production scenarios that are typical of the printing industry.

Energy usage is typically estimated based on the machine's connected load. Connected load is the maximum power consumption the device can potentially reach. However, the calculated value is not...

This may not necessarily reflect the machine's energy consumption; actual energy consumption often differs significantly from the estimated value. Therefore, because a common system was not followed in the calculations...

Due to structural limitations, power consumption data between different devices cannot be compared, especially considering peripheral equipment such as infrared (IR) or ultraviolet (UV) drying devices and measurement...

The influence of the cycle is also not taken into account, as the difference in measurement cycles cannot be taken into account.

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.

Energy efficiency during flashing. However, users of this document should understand that power efficiency does not determine the quality of the expected output that the customer may require.

Receipt level. Power consumption is a crucial component of all output requirements and quality standards; this data can be used for lifecycle analysis (LCA) and calculation.

Calculate the carbon footprint of printing systems and printed materials. Energy efficiency can be reported in several ways, such as the number of prints per kilowatt-hour. This information can be used to.

- Provides data for lifecycle analysis (LCA) of printing equipment;
- Evaluate the power consumption and energy efficiency of production-grade digital printing equipment and peripheral devices;
- Estimate the operating costs of the investment plan;
- Benchmark testing of the energy efficiency of production-type digital printing equipment;
- Calculate the carbon footprint of printed materials;
- Encourage digital printing equipment to improve energy efficiency over time;
- Provides data that enables companies to apply for environmental subsidies;
- Provides data for carbon offsetting purposes.

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

This document can be used to determine the energy efficiency of production digital printing presses of any format, except for production printing mode, which accounts for a significant portion of the overall energy consumption.

It plays an important role.

When comparing results obtained according to this document, it is recommended that the comparison devices be set to use comparable printing technologies, processes, and equipment.

Configure it to produce the same print quality.

Digital printing equipment includes transition modes and Measurement of energy consumption in related models

1 Scope

This document specifies the method for measuring and calculating the power consumption of production digital printing presses of any format, including transition mode and related