ICS 37.100.10
CCS J87

JB

Mechanical Industry Standard of the People's Republic of China

JB/T 15201-2025

Printing machinery—Cold stamping machine

Issued: September 9, 2025
Effective: March 1, 2026

Ministry of Industry and Information Technology Issued

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Foreword

This document is formulated in accordance with the provisions of GB/T 1.1—2020, Guidelines for Standardization Part 1: Rules for the Structure and Drafting of Standardization Documents.

It should be noted that certain contents of this document may involve patents. The issuing body of this document assumes no responsibility for identifying patents.

This document is proposed by China Machinery Industry Federation.

This document is under the jurisdiction of National Technical Committee on Printing Machinery of Standardization Administration of China (SAC/TC192).

Drafting Organizations of this document: Shanghai Tobacco Packaging and Printing Co., Ltd., Zhejiang Weigang Technology Co., Ltd., Zhejinag Jingbao Machinery Co., Ltd., Tianjin Changrong Technology Group Co., Ltd., Kunshan Ruiyuan Intelligent Equipment Co., Ltd., Guangdong Tianlong Printing Co., Ltd., Shanghai Yaoke Printing Machinery Co., Ltd., Hebei Wanjie Machinery Technology Co., Ltd., Shanghai Sicait Printing Machinery and Equipment Co., Ltd., Guangdong Qianrun Machinery Technology Co., Ltd., Guangdong Jinyulan Packaging Machinery Co., Ltd., Wenning Mingxu Machinery Technology Co., Ltd., Guangzhou Qiancai Paper Products Printing Co., Ltd., China Academy of Printing Science and Technology Co., Ltd.

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This document is issued for the first time.

Printing machinery—Cold stamping machine

1 Scope

This document specifies the equipment types, structural composition, basic parameters and technical requirements of cold foil stamping machines, describes the corresponding test methods, and stipulates the inspection rules, instruction manuals, product certificates, nameplates, markings, packaging, transportation and storage.

This document is applicable to the manufacture of cold foil stamping machines integrated with printing lines; the manufacture of cold foil stamping machines with independent functions shall be used for reference.

This document is not applicable to digital cold foil stamping machines.

2 Normative References

The contents of the following documents, through normative reference in this text, constitute indispensable provisions of this document. For the referenced documents with a specified date, only the version corresponding to that date is applicable to this document; for the referenced documents without a specified date, their latest versions (including all amendments) are applicable to this document.

GB/T 191 Packaging — Symbols for indicating storage and handling

GB 2894 Safety signs and their guidelines

GB/T 3264 Sheet-fed lithographic printing machines — Format of quarto and folio

GB/T 4728.1—2018 Graphical symbols for electrical diagrams — Part 1: General requirements

GB/T 4879 Antirust packaging

GB/T 5226.1—2019 Machinery electrical safety — Electrical systems of machines — Part 1: General technical conditions

GB/T 6388 Transportation packaging — Marking for despatch and receipt

GB/T 8196—2018 Safety of machinery — Protective devices — General requirements for the design and construction of fixed and movable guards

GB/T 9969 General rules for industrial product instruction manuals

GB/T 12265—2021 Safety of machinery — Minimum distances to prevent squeezing of parts of the body

GB/T 13306 Nameplates

GB/T 13384 General technical specifications for packaging of mechanical and electrical products

GB/T 16754—2021 Safety of machinery — Emergency stop function — Principles for design

GB/T 19436.1—2013 Machinery electrical safety — Electric sensitive protective equipment — Part 1: General requirements and tests

GB/T 25677 Printing machinery — Web-fed lithographic printing machines

GB/T 25679 Web-fed flexographic printing machines

GB/T 28387.1—2012 Safety rules for the design and construction of printing and paper converting machines — Part 1: General requirements

JB/T 9111—2014 Adhesive label printing machines

JB/T 9124.2 Flat screen printing machines — Part 2: Cylinder flat screen printing machines

JB/T 9124.3 Flat screen printing machines — Part 3: Curved surface flat screen printing machines

JB/T 11120 Printing machinery — Screen printing ultraviolet curing machines

BB/T 0031 Hot stamping foil for cold foil stamping

HG/T 2287—2008 Printing rollers

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1 cold foil stamping machine

A device that bonds cold foil stamping aluminum foil to a predetermined position on the surface of a substrate through the processes of adhesive coating, impression and stripping.

3.2 cold foil

A material used for cold foil stamping, which is made of plastic film as the base material through processes such as coating, embossing and aluminum plating.

3.3 dew point

A spot where no hot stamping is applied in the hot stamping area.

3.4 stripping drum

A drum that strips the material from the base material through the friction effect of the drum surface.

3.5 nip roller

A roller that combines materials together by applying pressure.

4 Equipment Types, Structural Composition and Basic Parameters

4.1 Equipment Types

4.1.1 Classified by adhesive coating method:

— Offset type;

— Flexographic type;

— Screen printing type.

4.1.2 Classified by substrate conveying method:

— Sheet-fed type;

— Web-fed type.

4.2 Structural Composition

It consists of an unwinding device, an impression device, a curing device, a rewinding device and a control system.

Note: For offset and flexographic cold foil stamping machines, the curing device is an optional part.

4.3 Basic Parameters

The basic parameters of cold foil stamping machines shall comply with the provisions of Table 1.

Table 1 Basic Parameters of Various Types of Cold Foil Stamping Machines

<table>
<tr><th colspan="3" rowspan="2">Equipment Type</th><th rowspan="2">Printing Machine Specification for Inline Connection (mm)</th><th rowspan="2">Maximum Stamping Speed</th><th rowspan="2">Maximum Unwinding and Rewinding Diameter (mm)</th><th colspan="2">Substrate</th></tr>
<tr><th>Paper Basis Weight (g/m²)</th><th>Film Thickness (mm)</th></tr>
<tr><td rowspan="2">Sheet-fed Type</td><td colspan="2">Offset Type</td><td>750, 1020, 1040, 1060</td><td>6000 sheets/hour</td><td rowspan="6">300~500</td><td>128~420</td><td rowspan="2">0.12~0.2</td></tr>
<tr><td colspan="2">Screen Printing Type</td><td>540, 800, 1060</td><td>1500 sheets/hour</td><td>150~420</td></tr>
<tr><td rowspan="5">Web-fed Type</td><td rowspan="2">Offset Type</td><td>Intermittent Type</td><td>350, 450</td><td>150 sheets/minute</td><td>90~350</td><td rowspan="4">0.015~0.2</td></tr>
<tr><td>Full Rotary Type</td><td>520, 680</td><td>65 meters/minute</td><td>50~300</td></tr>
<tr><td rowspan="2">Flexographic Type</td><td>Intermittent Type</td><td>350, 450</td><td>150 sheets/minute</td><td>50~300</td></tr>
<tr><td>Full Rotary Type</td><td>350, 450, 650</td><td>65 meters/minute</td><td>300~420</td><td>60~420</td></tr>
<tr><td colspan="2">Screen Printing Type</td><td>320, 800</td><td>150 sheets/minute</td><td>300~400</td><td>100~420</td><td>0.1~0.3</td></tr>
</table>

5 Technical Requirements

5.1 Mechanical Performance

5.1.1 The actuating mechanism shall operate in a coordinated and accurate manner, without jamming or unintended movement.

5.1.2 The transmission system shall run and adjust speed smoothly, without abnormal noise.