

इंटरनेट

मानक

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Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 12136 (1987): Classification of printing machines [MED
25: Printing Machinery]



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Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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*Indian Standard***CLASSIFICATION OF PRINTING MACHINES**

1. Scope — This standard evolves a rational method in classification of various types of printing machines.

2. Methodology — The classification is based on the basic principles of transfer of inked image from the forme to the substrate.

2.1 The following are the basic principles.

2.1.1 Relief-printing — The printing surface is raised at a uniform level in reversed image at a height of 2.33 mm to transfer the ink directly to the substrate under uniform pressure. This process is known as letterpress printing.

2.1.2 Planographic printing — The printing and non-printing surfaces are in the same height or level and the inked image are transferred on the substrate. The principle of this process is based on ink-water repulsion. The images are transferred to blanket from the plate and printed on the substrate. This printing process is known as offset or lithographic printing.

2.1.3 Intaglio printing — The printing surface is recessed from the non-image area and the ink fills up on the recessed portion and is wiped clean by a doctor blade. The paper sucks the ink to give impression directly. This process is known as intaglio or gravure printing.

2.1.4 Silk screen printing — The image area is made into a stencil by opaquing on non-image areas of a piece of silk cloth stitched on a frame. The ink filled on the frame is transferred through the screen and passes-on to the substrate hold next to the screen on the other side. This process is known as silk screen printing.

3. Printing Machines Based on Letterpress

3.1 Classifications Based on Construction and Mechanism

3.1.1 Platen printing machine

- a) Hand-fed platen, and
- b) Auto platen.

3.1.2 Flat bed cylinder

- a) Stop cylinder,
- b) Single revolution cylinder,
- c) Oscillating cylinder, and
- d) Two-revolution cylinder.

3.2 Classifications Based on Paper Used

3.2.1 Sheetfed letterpress machine

- a) Flat bed cylinder, and
- b) Rotary letterpress.

3.2.2 Web-fed letterpress machine — Rotary letterpress.

3.3 Classifications Based on Number of Colours

3.3.1 Single colour

- a) Flat bed cylinder, and
- b) Rotary web.

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3.3.2 Multi-colour

- a) Flat bed cylinder, and
- b) Rotary web.

3.3.3 Multi-reel

- a) Multi-unit,
- b) Rotary web, and
- c) Rotary satellite.

3.4 Classifications Based on End-Product

3.4.1 Fixed size cut-off (reel to sheet) — Rotary web.

3.4.2 Variable size cut-off — Rotary web.

3.4.3 Reel-to-reel — Rotary web.

3.4.4 Reel-to-fold — Rotary web:

- a) Broad sheet,
- b) Tabloid,
- c) Quarter fold, and
- d) Double parallel.

4. Flexographic Printing Machine — The principle of printing is more or less same as of letterpress printing. The image carrying printing plates are made of soft or resilient material and a water-based ink is directly applied to the plate and the image is transferred to the paper directly.

5. Planographic Printing Machine

5.1 Classifications Based on Construction and Mechanism

5.1.1 Lithographic printing machine — Direct litho.

5.1.2 Flat bed cylinder offset

5.1.3 Rotary cylinder offset

- a) Conventional three or four cylinders, and
- b) Satellite.

5.2 Classifications Based on Number of Colours

5.2.1 Single colour

- a) Flat bed cylinder, and
- b) Conventional rotary (three cylinders in one unit).

5.2.2 Multi-colour

- a) Rotary,
- b) Flat bed cylinder (two colours in one unit with five cylinders),
- c) Rotary offset in line construction (three or four cylinders in one unit), and
- d) Rotary satellite construction (three or four colours in one unit with single impression cylinder).

5.3 Classifications Based on Paper Feeding

5.3.1 Sheetfed

- a) Flat bed cylinder offset, and
- b) Rotary offset.

5.3.2 Web fed

- a) Unit system consisting of three cylinders, and
- b) Perfecting by four cylinders blanket to blanket.

5.4 Classifications Based on Configuration of Printing Press

5.4.1 Web printing machine — Three- or four-cylinders printing machine.

5.4.2 'U' or 'N' printing unit — Four-cylinders.

5.4.3 'Y' printing unit — Six-cylinders.

5.4.4 Satellite printing unit — Seven-cylinders.

5.4.5 Satellite printing unit — Nine-cylinders.

6. Other Type of Printing Machines

- a) Thermographic printing machine — Letterpress,
- b) Laser printing machine,
- c) Collo-type printing machine, and
- d) Holographic printing machine.

EXPLANATORY NOTE

This standard makes an attempt to lay down the broad classification of printing machinery. While preparing the standard, assistance has been derived from Italian National Standard, UM 6435-1969 'Classification of printing machines'.