



Choosing a microfilm camera

South Carolina Department
of Archives and History
Archives and Records
Management Division

Introduction

One decision government officials must make in setting up an in-house micrographics operations is the type of camera they should lease or buy. As with other micrographics decisions, you can make costly errors if you fail to consider your needs before you purchase a camera. Because no one camera produces all types of microforms, you must match the camera with the film you need. This decision alone, however, is not enough. You must also match the camera with the records to be filmed. Some records, because of characteristics such as size and color, may have to be filmed on a specific camera; other records that can be filmed on more than one camera might be filmed more efficiently on a specific camera. Before you purchase a camera, you should consider carefully the capabilities of various types. And remember that the film from all cameras must meet the “Quality Standards and Practices for the Microfilming of Public Records” as authorized in the *Code of Laws of South Carolina, 1976*, State Regulation 12-200 through 12-203.

Three types of camera—planetary cameras, rotary cameras, and step-and-repeat cameras—film source documents. Although there are variations within each type, these cameras share common characteristics. This leaflet describes the three types of camera, their characteristics, and their advantages and disadvantages.

Planetary cameras

Planetary cameras, also called “overhead” or “flat-bed” cameras, use a method of filming in which the document and the



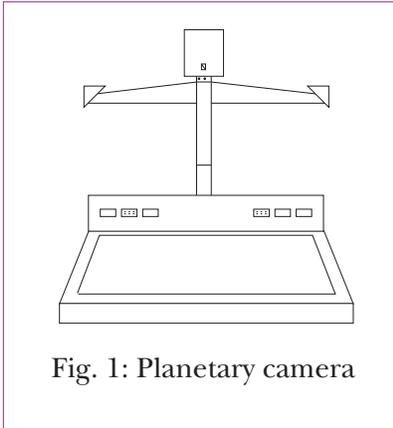


Fig. 1: Planetary camera

film remain stationary. A planetary camera consists of a flat surface, called a copyboard, a set of lamps, an overhead camera unit mounted on a vertical track, and an electrical control system. Other features, such as an automatic feed device, automatic exposure meters, and image indexing capabilities, may be added to the more sophisticated models.

Filming is done by placing the document flat on the copyboard under the overhead camera. The height of the camera sets the reduction ratio; on some models the camera height is pre-set; on other models, the height—and thus the reduction ratio—can be changed by moving the camera up and down the vertical track. The document is filmed, removed from the copyboard, and replaced by the next document to be filmed.

Because the document is stationary during filming, the planetary camera can produce a film image that is superior to the image from a rotary camera. Planetary cameras can produce 16mm or 35mm film and can film documents up to 45" wide. Some of these cameras are mobile, and some are large and heavy.

Advantages

- 1) Planetary cameras can film bound volumes, which are usually placed in book cradles or other devices, without damaging the bindings.
- 2) They give greater flexibility because they can film documents of various sizes. Special models can film large documents like engineering drawings.
- 3) They can film brittle or fragile documents.
- 4) They produce a higher-quality film image than rotary cameras.
- 5) Some models can change the reduction ratio without requiring a change of lens.
- 6) They cause fewer retakes than rotary cameras.
- 7) They can produce either 16mm or 35mm film; some models can convert from one to the other; and some models expose two 16mm camera rolls simultaneously.
- 8) They require less maintenance than a rotary camera.
- 9) They can film blips or image markers for faster retrieval in reader/printers.
- 10) They can connect to a computer to index film.

Disadvantages

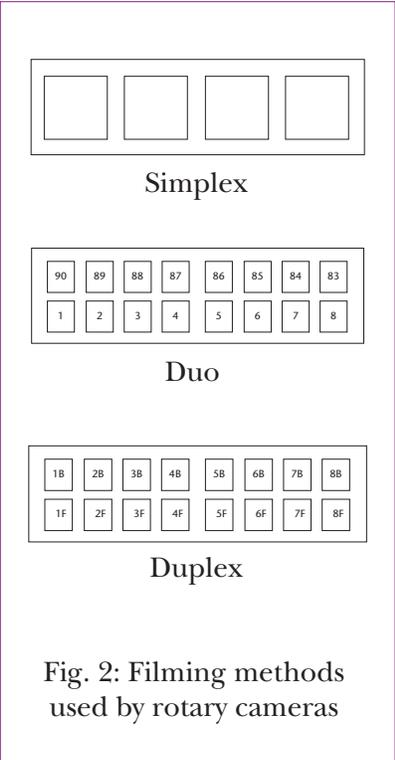
- 1) Planetary cameras film more slowly than rotary cameras. They can, however, be equipped with automatic feed devices that speed filming.





- 2) Larger models are less mobile than rotary cameras.
- 3) Some models require high ceilings or a large area of floor space.
- 4) Outside or room light may affect the quality of the film.
- 5) The larger, more sophisticated cameras are more expensive than rotary cameras.
- 6) They can only film one side of a page at a time.
- 7) They require a retake when operators leave their hands in the filming area or fail to hold the paper still during exposure.

Rotary cameras



A rotary camera uses a method of filming in which the paper and film move simultaneously. A rotary camera consists of a camera unit, a paper moving and guiding mechanism, and a light-tight cabinet, which houses light controls. Documents are fed into the camera, either by hand or automatically, through a slot. The width of slot, therefore, dictates the width of the document the camera can film. Some models have slots that range from 9.5" to 18"; most have slots of 11" or 12". Although the documents these cameras can film are limited by width, they are usually not limited by length.

As the document travels through the camera, it moves over rollers that guide it past the camera lens. As the document passes under the lens, it turns the lights on and off automatically, exposing the film. The length of time the film is exposed to the light can be controlled either manually or with an automatic exposure.

Rotary cameras use only 16mm film. The different models use various filming methods. Some film only one side of a document (simplex method), some film both sides simultaneously and expose them side by side on the film (duplex method), and some film one set of documents on one-half of the width of the film and another set of documents on the other half (duo method). Other models will film both sides of the document and two rolls of film simultaneously (triplex method).

Advantages

- 1) Rotary cameras film good quality documents of uniform size at high speed.
- 2) Some models can film both sides of a document simultaneously.





- 3) Some models can produce two rolls of negative film.
- 4) They are easy to operate.
- 5) They have variable reduction ratios.
- 6) The more sophisticated models can number the documents as they are filmed.
- 7) Some models can endorse checks before filming.
- 8) Some models use bar coding and patch cards for fast retrieval in reader/printers.
- 9) Some models can stamp a series of numbers on the paper before exposure to allow computer indexing and fast retrieval in reader/printers.
- 10) They have more mobility than planetary cameras.

Disadvantages

- 1) Rotary cameras limit the width of the document and the weight of the paper, and they cannot film bound books.
- 2) They have a lower resolution than planetary cameras.
- 3) They limit the color of paper and the type of ink.
- 4) They require more document preparation than planetary cameras.
- 5) They use only 16mm film.
- 6) The movement of the records during filming causes more retakes.
- 7) They require daily cleaning.
- 8) They have more moving parts than a planetary camera.
- 9) A service agreement for a rotary camera costs more than one for a planetary camera.

Step-and-repeat cameras

The step-and-repeat camera is a variation of a planetary camera. It produces 105mm microfiche and positions images on the fiche in a grid pattern. It has the same advantages and disadvantages as a planetary camera, but it is more expensive than a comparable rotary camera.

For more information

This leaflet is one of a series of leaflets issued by the Archives and Records Management Division of the South Carolina Department of Archives and History.

The Archives and Records Management Division has statutory responsibility for advising government offices on micrographics. The Archives and Records Management Division also issues publications and provides advice and help on all aspects of records management and archival administration.





For more information, please contact the South Carolina Department of Archives and History, Archives and Records Management Division, State Record Center, 1919 Blanding Street, Columbia, SC 29201. (803) 734-7914. ■

**Public information
leaflets from
the Archives**

- no. 1 *Legal requirements for microfilming public records (1992)*
- no. 2 *On choosing records for microfilming (1992)*
- no. 3 *Service bureau or in-house microfilming (1992)*
- no. 4 *Targeting and certification of microfilm (1996 revised)*
- no. 5 *Choosing a microfilm camera (1992)*
- no. 6 *Quality testing of microfilm (1992)*
- no. 7 *Microfilm and microforms (1992)*
- no. 8 *Choosing a micrographics service bureau (1992)*
- no. 9 *Choosing microfilm readers and reader/printers (1992)*
- no. 10 *Computer assisted retrieval systems (1992)*
- no. 11 *Microfilm storage (1992)*
- no. 12 *Preservation microfilming (1992)*
- no. 13 *Optical Disk: policy statement and recommended practices (1996 revised)*
- no. 14 *Storing records in the State Records Center (1993)*
- no. 15 *The deposit of security microfilm (1993)*
- no. 16 *Disaster preparedness and recovery in state and local government records offices (1993)*
- no. 17 *How to conduct a records inventory (1993)*
- no. 18 *How to establish records retention schedules (1993)*
- no. 19 *Photographic media (to be announced)*
- no. 20 *Editing and splicing roll microfilm of long-term or archival value (1994)*
- no. 21 *Managing E-Mail (to be announced)*
- no. 22 *Standards for microfilm service bureau certification (1996)*





Notes: