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MICROFILM CONTAINER SURVEY (U)

by

J. B. Malcom

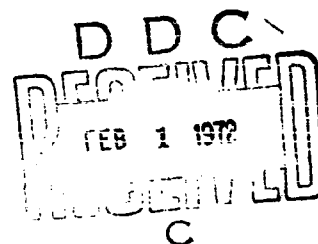12 November 1971

prepared for

ENGINEERING DATA STORAGE & RETRIEVAL (EDS&R) PROJECT

PICATINNY ARSENAL

Dover, New Jersey 07801

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Under Contract DAAA21-69-C-0642

by

DATAFLOW SYSTEMS INCORPORATED

7758 Wisconsin Avenue

Bethesda, Maryland 20014

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13. ABSTRACT

This survey provides an overview of the field of currently available microfilm containers. The report lists the manufacturers' names, addresses and also the name of the person to contact for more information. Also provided is the physical data on the container manufactered along with a sketch of the item showing the physical dimensions of the container. A proposed addition to this report (to be issued as a revision where information is available) is to include details on the interchangeable cartridge being developed at Picatinny Arsenal by the Engineering Data Storage and Retrieval Project.

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Microfilm Container Survey (U)

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Picati·ny Arsenal

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interchangeable cartridge being developed at Picatinny Arsenal by the
Engineering Data Storage and Retrieval Project.

PREFACE

First Reissue

Since the initial distribution of this report in July of 1971, additional containers have become available in conjunction with the new microform systems. Comments on the initial report have also been received and are incorporated in this first reissue.

The Micro 8 Company has introduced a 8mm cassette for microform systems. The DSI Systems Inc. 16mm cassette, now marketed by Stromberg Datagraphix, has also been included in this reissue.

Additional microfilm reader compatibilities have been brought to our attention and have been added to the data sheets. Dimensions in error have been corrected. Of particular note is the continued production of Eastman Kodak Recordak equipment using their Recordak Film Magazine, previously noted in Section 6 as discontinued.

Additional containers and compatibilities will be noted as they become available and may be included in future revisions.

All comments as to the format, content and usefulness of this publication as well as suggestions for its improvement are ernestly solicited. They may be forwarded to: Department of Army, Picatinny Arsenal, Dover, New Jersey, 07801; Attention: SMISPA-TS-T-F (L. Volkheimer).

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Microfilm Container Survey

1.0   Introduction

The microfilm industry has standardized on film widths
of 16mm, 35mm, 70mm and 105mm. The packaging of these films into
cartridges and cassettes for use in microfilm readers, however, has
been dependent upon the equipment manufacturer's requirements and
little standardization exists. The container of one manufacturer is
not interchangeable with those of a second in most equipment. This
situation is expanding further in the recent years as new computer-
oriented firms enter the microfilm field.

Large users of microfilm equipment and systems, such as
the Department of Defense, could simplify their production and packag-
ing of 16mm and 35mm microfilm publications if standard interchange-
able cartridges or cassettes for 16 and 35mm microfilm were possible.
A study effort, under the American National Standards Institute and
the Department of the Army, is striving toward standards for this
area.

2.0   Objective

This technical note presents the results of an informal
survey made of known manufacturers of microfilm containers used in
microfilm readers and reader/printers. The information is intended
to serve as an overview of the field of currently available micro-
film containers with some sort of easy-rapid or self-threading
feature. Emphasis has been placed on the overall physical size and
the spindle/drive mechanism interface, since these are the key
elements of interchangeability.

3.0   Methodology

An initial list of persons from the microfilm industry, compiled by the Contract Project Officer, was supplemented with additional industry contacts. A letter was sent to each, requesting information on any containers they manufacture. A sample of the proposed format was included.

Additional sources were determined by inquiry to others in the industry. These were followed up by letters and telephone calls. Those originally queried who did not respond were queried again both by letter and telephone. In the majority of the cases the information desired was readily offered. Over sixteen formal requests were issued, and replies were obtained from all but two producers of microfilm containers.

4.0   Results

The known manufacturers of self threading or rapid threading microfilm containers are tabulated in figure 1.

Following the figure, descriptive sheets are given for each container.

5.0   Discussion

Each of the major manufacturers of microfilm equipment have their own container essentially fitting only their own motor driven readers.

Only one concern, Information Design, Inc., makes equipment to convert existing microfilm readers to "cartridge" type systems, and even then a special container must be used.

Several microfilm readers which will accept more than one cartridge type are currently available. Automatic threading, however, is not available on these readers.

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Microfilm Containers with Cores

Manufacturer	Type	Size
Alpha Vector	Double Core	11-5/8" x 3-7/8" x 1-11/32"
Bell & Howell	Double Core	6-1/4" x 4-7/8" x 1"
Burroughs Corp.	Single Core	4" x 4" x 1"
DSI Systems Inc.	Double Core	6-1/8" x 4-3/4" x 7/8"
Eastman Kodak	Single Core	4" x 4" x 1"
Information Design, Inc.	Single Core	3-3/4" x 3-3/4" x 1"
	Single Core 35mm	3-3/4" x 3-3/4" x 1-3/4"
Information Handling Service	Double Core	6-3/4" x 3" x 3/4"
Memorex Corp.	Double Core	7-3/8" x 3-1/4" x 1"
Micro 8 Company	Double Core 8mm	5" x 2" x 5/8"
Stromberg Datagraphix	Single Core	4-1/2" x 4-1/2" x 1"
3M Co.	Single Core	4" x 4" x 1"
Western Reserve Electronics*	Double Core	8-3/4" x 6-3/4" x 1-1/2"

*Information not provided; container was developed under an Army contract and is not in production.

Figure 1

3

The newer Eastman Kodak microfilm readers utilize a standard 16mm or 35mm reel with a Thread-Easy[1] thre. ing mechanism. These are not containers per se, but rather constitute a threading system available only in their readers even though they use a standard reel.

6.0   Trends

No trend can be clearly stated in the spread of container microfilm systems, but several observations can be made.

The 3M Co.'s cartridge design has been licensed to other companies for use in microfilm readers, and several new readers use their cartridges.

While Eastman Kodak has introduced a new line of equipment using their Thread-Easy design with a standard reel, other equipment using the Recordak Film Magazine continues in production including one of their newest readers, the Recordak Microstar PR-1.

We must also note the Memorex cassette and its inter-changeable core design which permits rapid changing of the film contents by loading and threading a new film wound on a core. This is the only container designed for easy reloading of the film. The container's overall dimensions are identical to the standard data processing card. This size has also been adapted for a microfiche format.

7.0   Conclusions

Proprietary positions appear to preclude development of a "standard container," but a series of interchangeable cartridge or container designs are possible. Design guides for future compatibility are feasible with standards developed at a later date. A range of sizes, methods and means are desirable in these guides to permit innovation. Overall size, core and spindle design, and film pick

(1) TM Eastman Kodak Co.

up point are practical starting points, for example. Evolution of
a military specification for DOD compatibility would develop both
an internal DOD standard and guidelines for industry.

Manufacturer: Alpha-Vector Incorporated   Type:
                                             16 - 105mm cassette

Address: 501 Fifth Avenue
                New York, New York 10017

Person to
Contact: Dr. H. J. Ghelberg

Used with: AV-100 Mass Storage Retrieval Station

Film Size and
Capacity: 100 ft. of 7.5 mil film available in 16mm,
                35mm, 70mm, and 105mm sizes.

Spindle Type: Self-contained drive/ tracking mechanism

List Prices: Not quoted

Comments: This is a special cassette designed only for use with the
            AV-100 retrieval unit. Cassette width varies with film size.
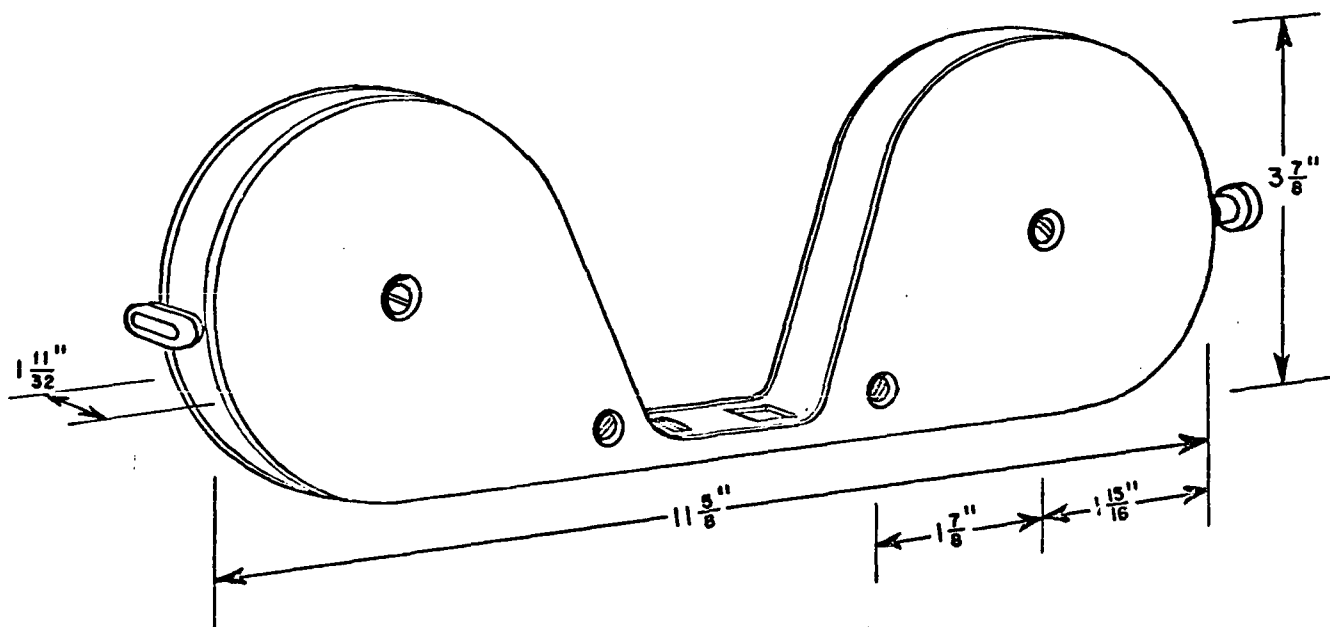
Manufacturer:	Bell & Howell Co.	Type:
	Business Equipment Group	16mm cassette
Address:	6800 McCormick Road	
	Chicago, Illinois 60645	
Person to Contact:	Aldolph J. Garwin	
Used with:	B&H Autoload I, Autoload II	
Film Size and Capacity:	16mm x 100' (5 mil)	
Spindle Type:	5/16" round shaft	

List Prices:

1 – 4	3.50 each
5 – 95	2.85 each
100 – 495	2.75 each
500 – 999	2.60 each
1000 +	2.50 each
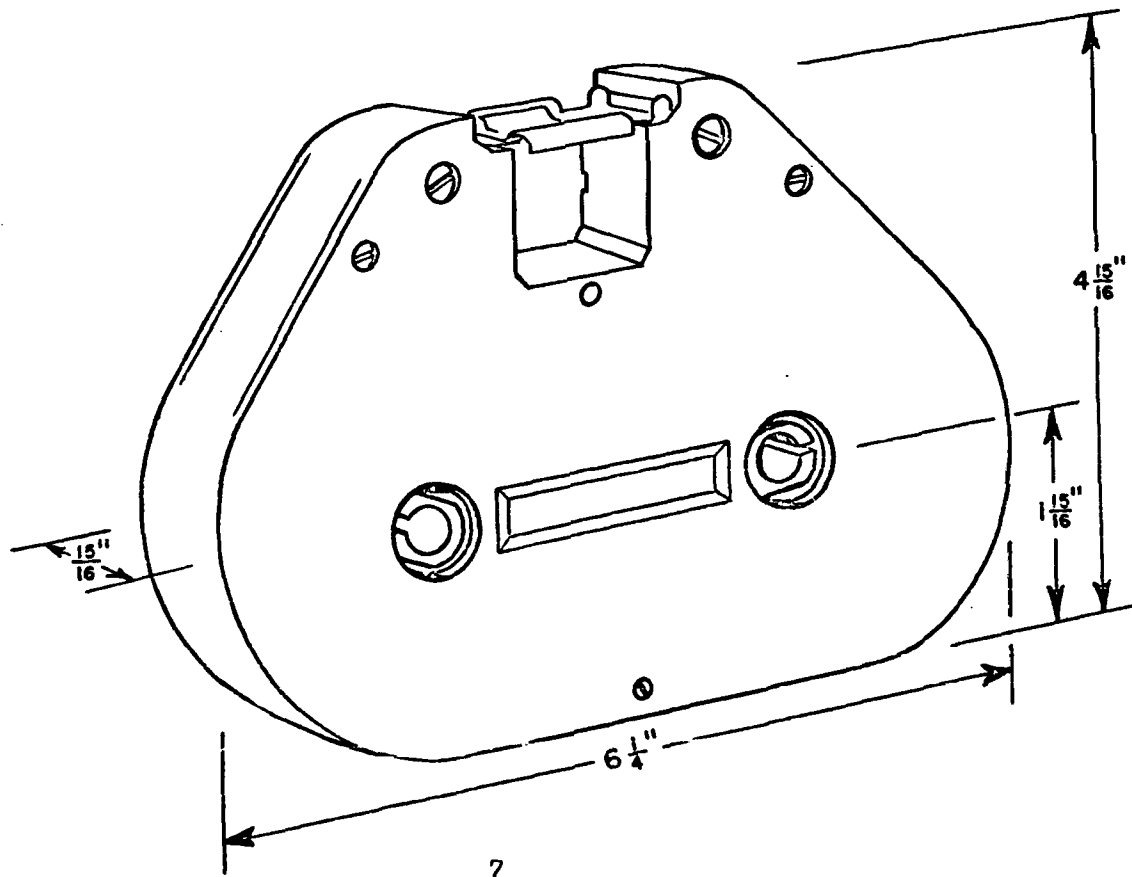
Manufacturer: Burroughs Corporation   Type: 16mm cartridge

Address: Great Valley Laboratories
                Paoli, Pennsylvania 19301

Person to
Contact: Mr. Robert Cain
_____

Used with: Burroughs Microfilm Readers B9061-1 & B9061-2

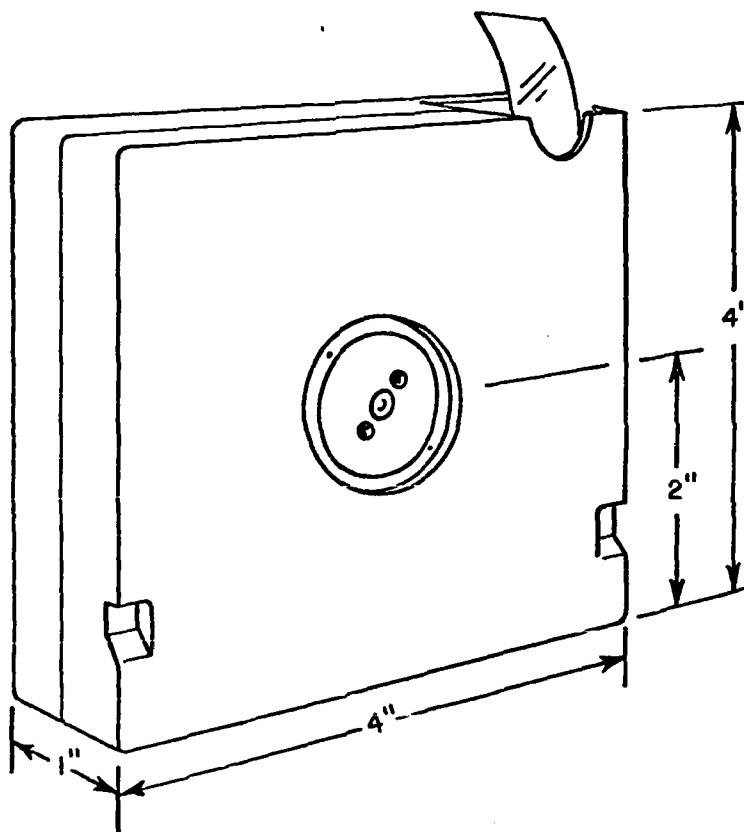Film Size & Capacity   16mm x 100' (5 mil base)

Spindle Type: 1-1/4" centering hub

List Price: $1.50

Note: Basically similar to Eastman Kodak Cartridge
                                1A and 2A which can be used in the Burroughs
                                equipment.

Compatible with: Dietzgen 4317
                                Microfilm Products 2000
                                Ednalite

Manufacturer: DSI Systems Inc.   Type:
                                        16mm cassette

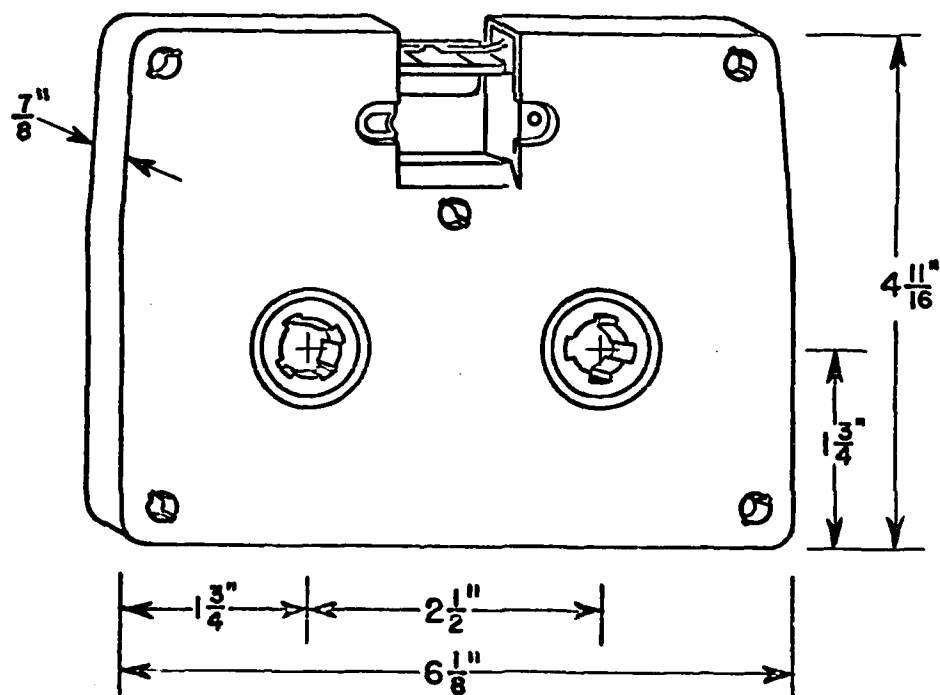Address: 15 Columbus Circle
                New York, New York 10023

Person to
Contact: Mr. Robert Harte

Used with: Stromberg Datagraphix Microsearch (DMS)

Film Size and
Capacity: 16mm x 100' (5 mil base)

Spindle Type: 15/16" special

List Prices: $6.00 each

Comments: Marketed by Stromberg Datagraphix

Manufacturer: Eastman Kodak Co.   Type: 16mm cartridge

Address: 343 State Street   Model: 1A
                Rochester, New York 14605   2A

Person to

Contact: Mr. M. Schreiber

Used with: Various Recordak Readers

  Automatic Threading   Manual Threading Readers
    Microstar Reader PR-1   Starlet Reader PTA
    Loadstar Readers PS,PS-1, PS-1-K   20/20 Portable Reader P-20
    Miracode Readers PFK & PEK-1   Magnaprint Reader PE-1A

Film Size & Capacity: 16mm x 100' (5 mil base)

Spindle Type: 1¼" centering hub

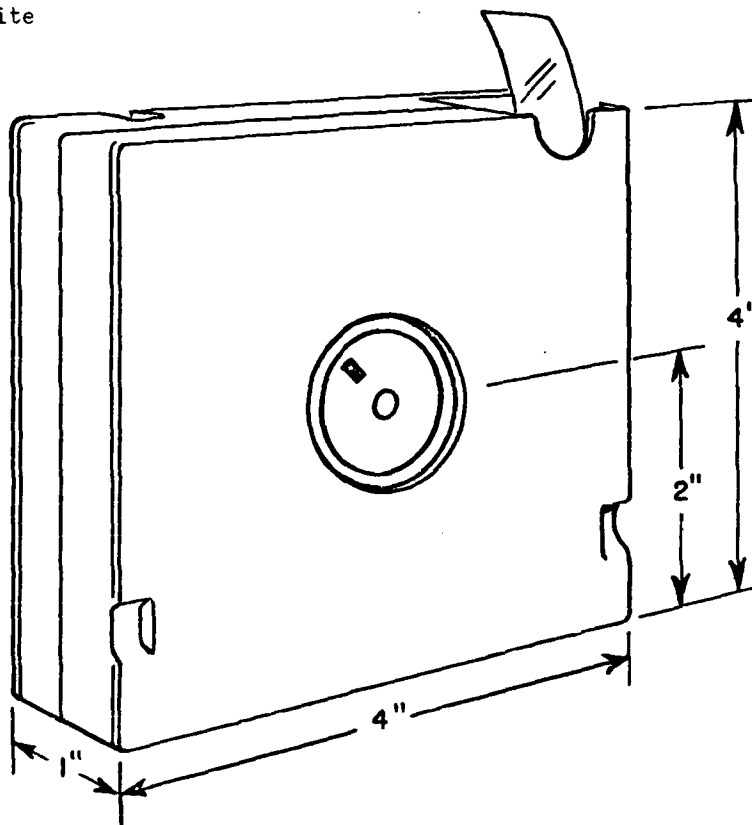List Price: 1A   2A

      15-149 $1.45 ea. $1.55 ea.
      Case (150) $1.15 ea. $1.25 ea.

Compatible with:

    Dietzgen 4317
    Microfilm Products 2000
    Ednalite

Manufacturer:	Information Design, Inc.	Type:
		16mm Cartridge
Address:	3247 Middlefield Road	
	Menlo Park, California 94025	
Person to		
Contact:	Brett Butler, Marketing Manager	

Used With: Most reel type equipment, such as Recordak MPE, Magnaprinter, Xerox 1414 & Microprinter, 3m Filmac 100, 200R, 400 M&R, and others using standard reel spindle. Conversion kits required.

Film Size & Capacity: 16mm x 100' (5 mil film)

Spindle Type: Standard 5/16" square shaft

List Prices:

        1 - 999 $1.25
    1000 - 4999 $1.15 each
    5000 - 10,000 $1.05 each

Manufacturer: Information Design, Inc.   Type:
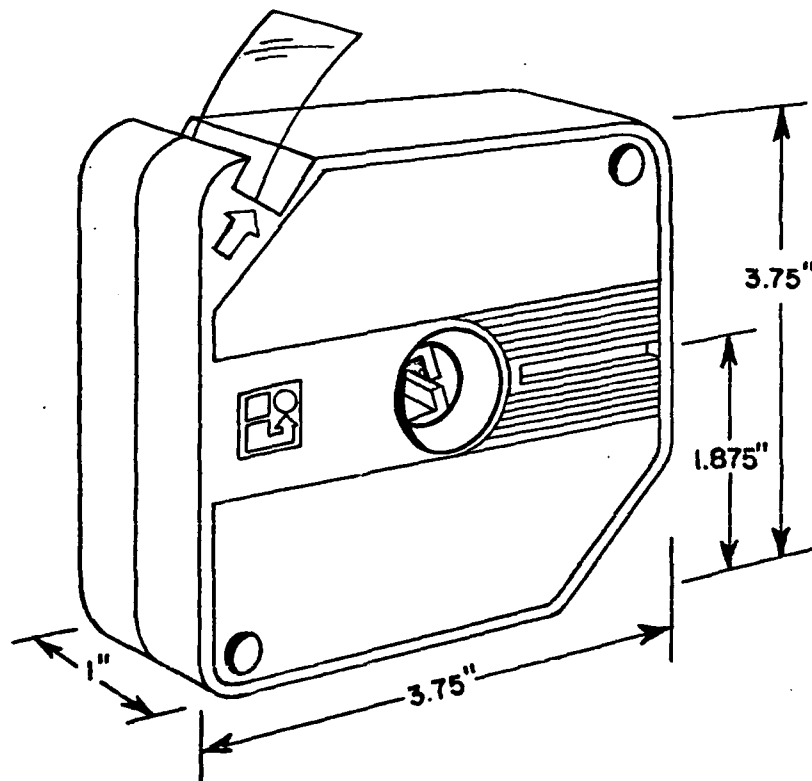   35mm Cartridge

Address: 3247 Middlefield Road
              Menlo Park, California 94025
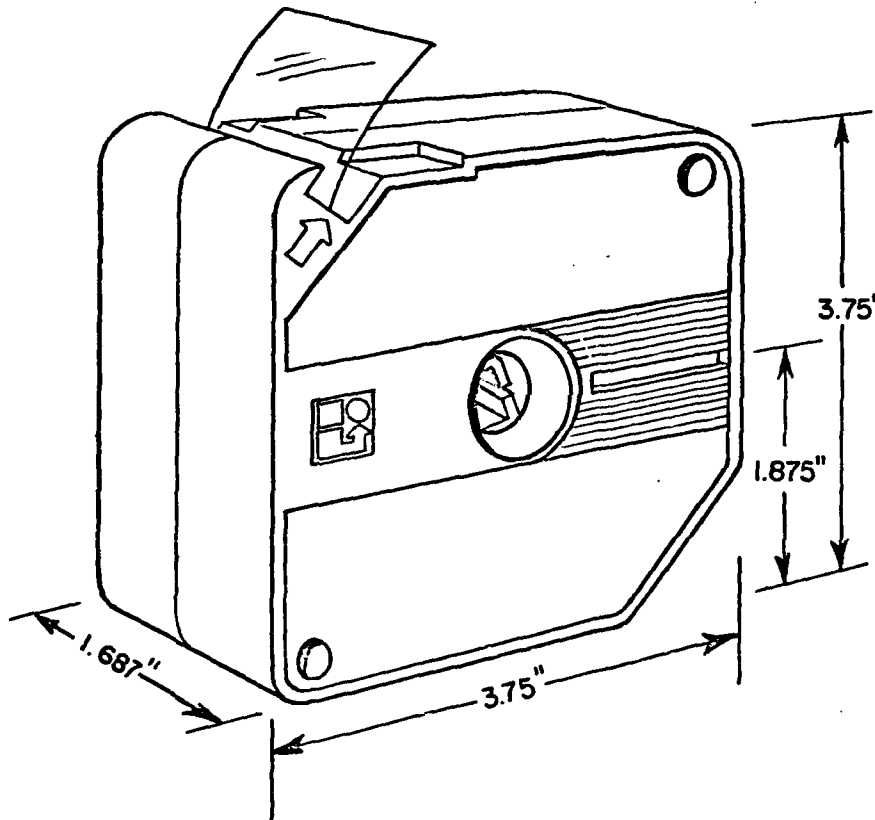
Person to
Contact: Brett Butler, Marketing Manager

Used with: Recordak MPE, 3M Filmac 100, 200R, 400 M & B, and others
              use standard reel spindle
   (conversion kits required)

Film Size &
Capacity: 35mm x 100' (5 mil film)

Spindle Type: Standard 5/16" Square Shaft

List Prices: 1 -   999 $1.85 each
              1000 - 4999 $1.70 each
              5000 - 10,000 $1.60 each

Manufacturer: Information Handling Services   Type:
                                                        16mm Cassette

Address: 5500 South Valentia Way
                 Englewood, Colorado

Person to
Contact: Unknown
_____

Used with: VST Satellite II

Film Size &
Capacity: 16mm x 100' (5 mil base)

Spindle Type: Special

List Prices: 3.00 each
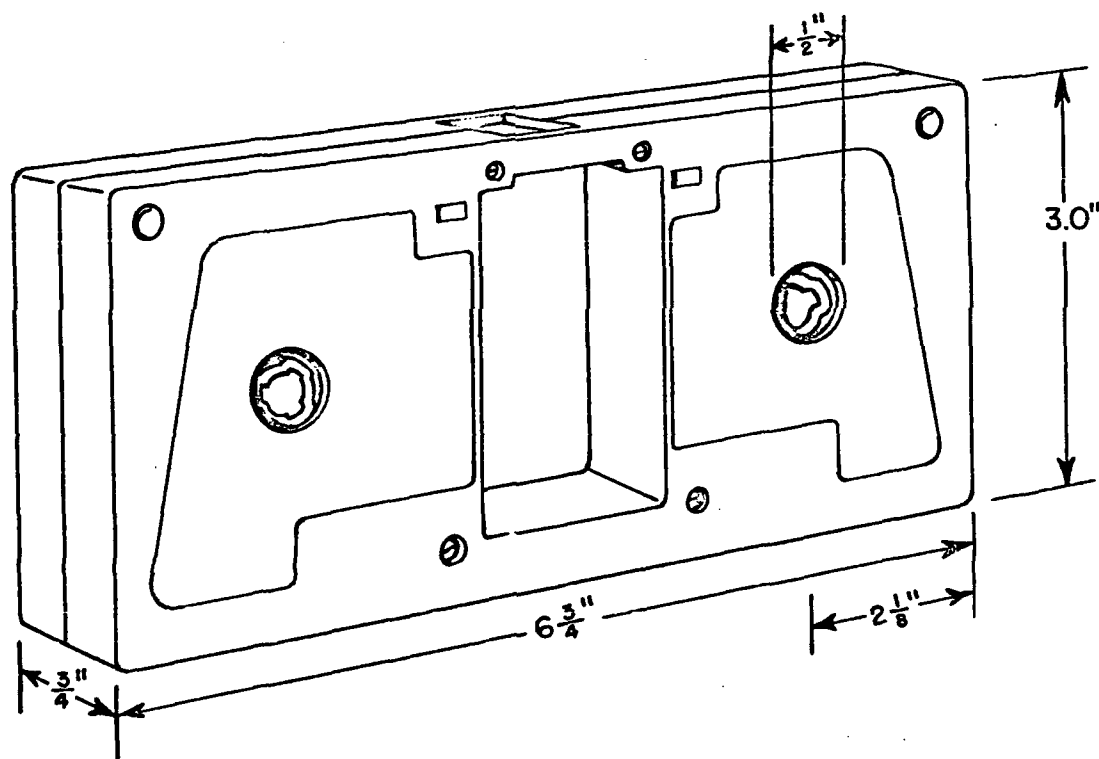
|			
Manufacturer:	Memorex Corp.	Type:	
		16mm Cassette	
Address:	San Tomas & Central Expressway		
	Santa Clara, California	Model: C-100	
Person to			
Contact:	A. G. Orsborn		

Used with: Memorex 1642 Viewer
Memorex 1643 Autoviewer
Memorex 1650 Viewer/Printer

Film Size and
Capacity: 16mm x 50' (5 mil)

Spindle Type: 15/16" special

List Prices:
20 - 80	$1.75 each
100 - 180	$1.50 each
200 - 980	$1.35 each
1000 +	$1.25 each

3.25"

1.63"

1"

4.38"

7.38"

14
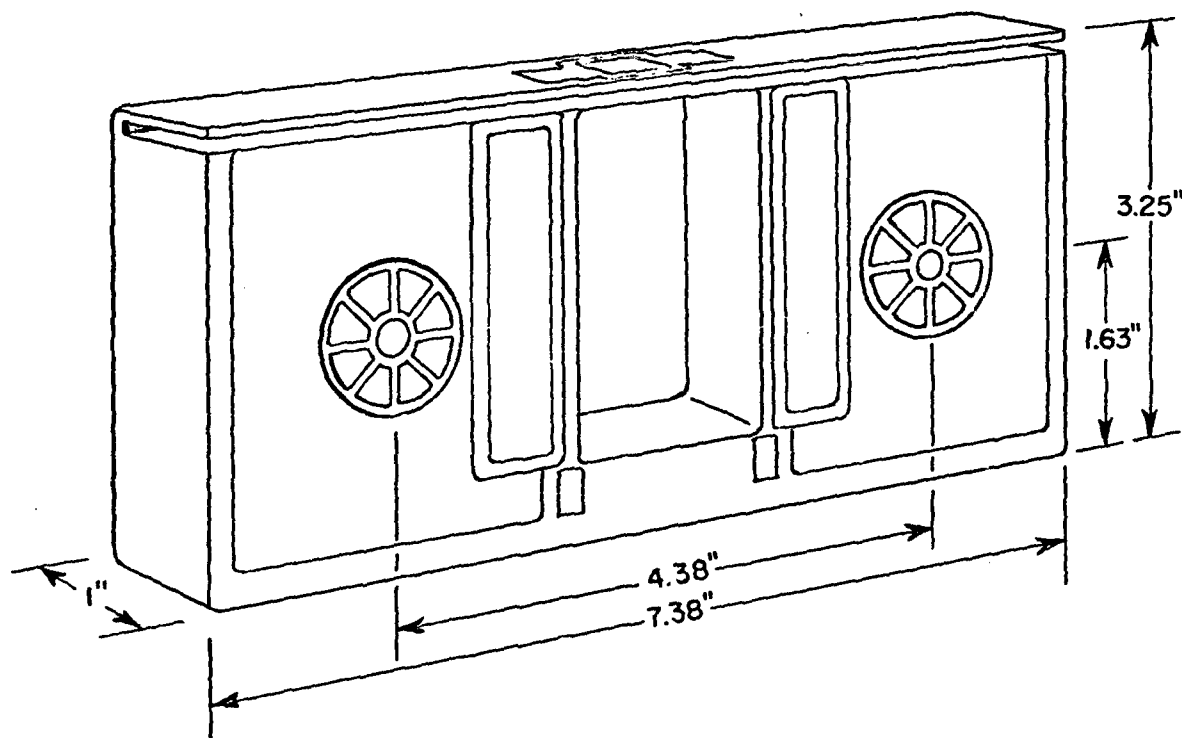
Manufacturer: Micro 8 Company   Type:
                                                       8mm cassette

Address: P.O. Box 1087
                   LaCrosse, Wisconsin 54601

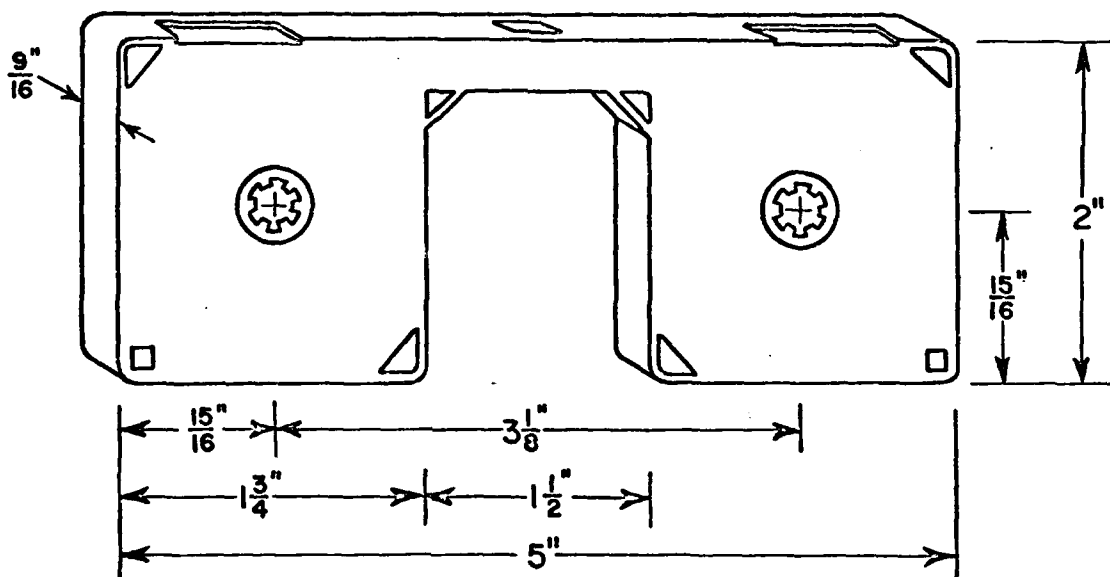Person to
Contact: A. L. Baptie

Used with: Micro 8 Model A
                   Micro 8 Model C

Film Size and
Capacity: 8mm x 50' (thin base)

Spindle Type: 5/16" special

List Prices: $1.50 each
                   Quantity discounts available

|		
Manufacturer:	Stromberg Datagraphix	Type: 16mm Cartridge
Address:	P. O. Box 20291 San Diego, California 92120	Model: . SD 1700
Person to Contact:	Mr. Donald Stanley	

Used with: Datagraphix 1700 Roll Film Inquiry Station

Film Size &
Capacity: 16mm x 100' (5 mil film)

Spindle Type: Standard 5/16" square shaft with 1-3/8"centering
                 shoulder

List Prices: SD 1700 Cartridge Assembly

	10-90	100-190	200 +
Shell	$ .505 ea.	$.425 ea.	$.365 ea.
Spool	.565	.505	.445
	$1.070 ea.	$.930 ea.	$.810 ea.
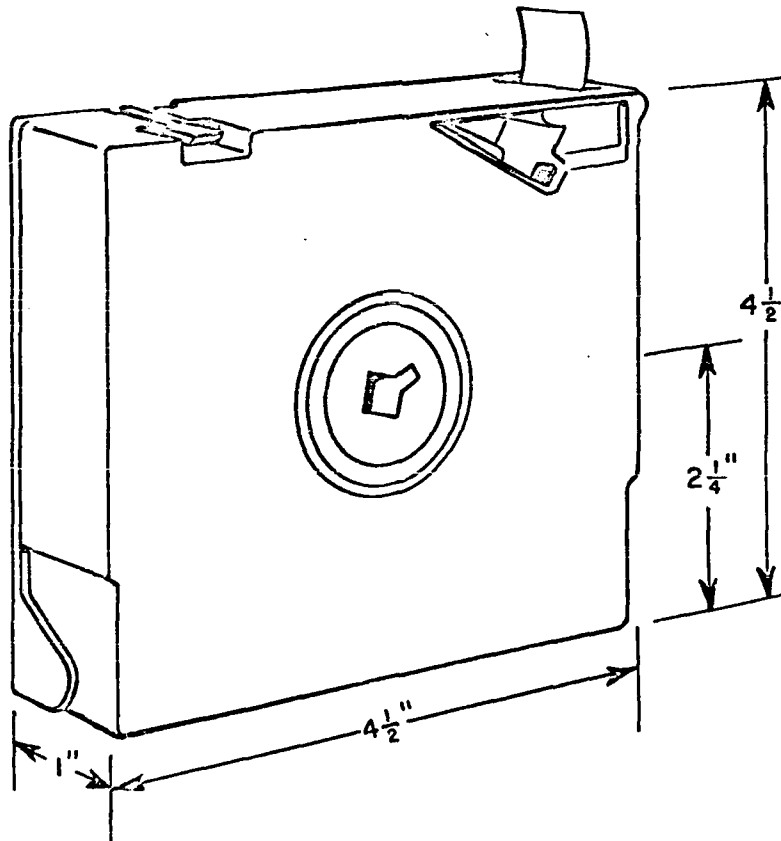
Manufacturer: 3M Co., Microfilm Products Division

Type:
16mm Cartridge

Address: 3M Center, Building 235-2A
          St. Paul, Minnesota 55101

Person to Contact: S. M. Trippe

Used with: 3M 400C Reader & Reader/Printer
            3M 700 Readers

Compatible with: (requires spindle adaptor)

          Recordak P-20 Reader
          Washington Scientific Industries Reader
          Ednalite 1670 Reader
          Microfilm Products 2000
          Dietzgen 4317

Film Sizes & Capacity:
          16mm x 100' 6 mil film

Spindle Type:
          Patented drive

List Prices:
          $1.25 each