

STORAGE OPTIONS FOR THE VARIOUS MEDIA

Data

Data safes

Computer media is easily damaged. Manufacturers recommend storing magnetic media at a temperature below 125°F and at humidity level under 80%.

FireKing International

FireKing International has been manufacturing security equipment for vital records, documents, securities, and computer media since 1951. For extremely valuable data, the company manufactures data safes in many styles and sizes and to meet many budgets.

The company provides a lifetime warranty on all mechanical or operable parts. Associated labor costs for the repair or replacement of these parts will be paid for two years from the date of purchase.

FireKing data safes protect computer media from fire, dust, magnetic fields, unauthorized access, accidental damage, and electrostatic discharge. The equipment is designed to withstand tornadoes, hurricanes, devastating fires, and the test of time.

Its design incorporates layers of heat-absorbing material, fireproof insulating foam, and fireproofing within a tough steel casing. Its three-way bolt ensures doors remain shut if a building collapses during a fire or if a forced entry is attempted.

These safes are not waterproof until temperatures reach 350°F—then the insulation swells, preventing water intrusion even from direct fire hose spray.

The test procedure used for all the safes was the maintenance of an interior temperature of less than 125° F and an interior relative humidity less than 80% for Class 125 when exposed to fire as per the Standard Time Temperature Curve. These safes also successfully underwent all other requirements for the UL Fire Endurance Test, the Explosion Hazard Test, the Humidity Test, and the Fire and Impact Test.

The FireKing 3-hour Fire with Impact-rated Data Safe is FireKing's highest rated safe (see Figure 54). Under testing, it maintained an interior temperature of less than 125°F and an interior relative humidity less than 80% for Class 125 when exposed to fire as per the Standard Time Temperature Curve for three hours to 1,925°F.



Safe shown with Composite Drawers and Fixed Shelves (sold separately).

Figure 54. FireKing 3-hour Data Safe

Other features include:

- Programmable electronic lock for security and easy access
- UL RSC Burglary Rating
- Canadian UL Class 52 three-hour fire and impact resistance

These safes are available in five sizes. Their dimensions are listed in Figure 55.

Model	Interior size			Exterior size			Weight, lbs.	Capacity, cu. ft.
	Height, in.	Width, in.	Depth, in.	Height, in.	Width, in.	Depth, in.		
DM1413-3	13 5/8	11 1/2	16 11/16	29 5/8	25 1/4	31	650	1.5
DM2513-3	24 5/16	11 1/2	16 11/16	40 1/4	25 1/4	31	740	2.7
DM2520-3	24 5/16	18 5/8	16 11/16	40 1/4	32 1/16	31	1,050	4.4
DM3420-3	33 1/8	18 5/8	16 11/16	40 1/16	32 1/16	31	1,240	6.0
DM4420-3	43 5/8	18 5/8	16 11/16	59 3/4	32 1/16	31	1,420	7.9

Figure 55. FireKing 3-hour Data Safe Dimensions

Media capacities for the various models are listed in Figure 56.

Media type	DM1413-3	DM2513-3	DM2520-3	DM3420-3	DM4420-3
3.5" diskettes					
Qty per drawer	306	306	536	536	536
# of fittings	3	6	6	8	10
3480 IBM cartridges					
Qty per drawer	28	28	51	51	51
# of fittings	2	4	4	6	6
4mm DAT tapes					
Qty per drawer	70	70	125	125	125
# of fittings	4	7	7	10	13
8mm DAT tapes					
Qty per drawer	39	39	72	72	72
# of fittings	4	7	7	10	13
CD-ROM					
Qty per drawer	70	70	123	123	123
# of fittings	2	4	4	5	7
DLT tapes					
Qty per drawer	24	24	42	42	42
# of fittings	2	5	5	6	8
ZIP® PC 100					
Qty per drawer	73	73	128	128	128
# of fittings	3	5	5	7	9

(Based on average media sizes)

Figure 56. FireKing 3-hour Data Safe Multimedia Capacities

Optional interiors allow various configurations to meet a variety of storage needs.

FireKing also manufactures 2-hour Fire with Impact-rated Data Safes.

Under testing, this safe maintained an interior temperature of less than 125°F and an interior relative humidity less than 80% for Class 125 when exposed to fire as per the Standard Time Temperature Curve for two hours to 1,850°F.

Other features include:

- Equipped with a high-security key lock
- Optional interiors allow various configurations to meet a variety of storage needs
- UL Class 125 2-hour Fire and Impact Rating

These safes are available in four sizes. Their dimensions and media capacities for the various models are listed in Figures 57 and 58.

Model	Interior size			Exterior size			Weight, lbs.	Capacity, cu. ft.
	Height, in.	Width, in.	Depth, in.	Height, in.	Width, in.	Depth, in.		
DS2319-2LG	23 3/10	18 7/10	16 1/5	39 1/5	33	31 9/10	968	4.0
DS4319-2LG	43 1/10	18 7/10	16 1/5	59	33	31 9/10	1,485	7.5
DS6119-2LG	61 3/10	18 7/10	16 1/5	77 1/5	33	31 9/10	1,773	10.6
* DS5337-2LG	53 1/10	36 3/5	16 3/10	70 1/10	49 3/5	31 9/10	1,870	18.0
*Not UL rated.								

Figure 57. FireKing 2-hour Data Safe Dimensions

FireKing also manufactures 1-hour Fire with Impact-rated Data Safes. Under testing this safe maintained an interior temperature of less than 125°F and an

Media type	DS2319	DS4319	DS6119	DS5337
3.5" diskettes				
Qty per drawer	532	532	532	1,024
# of fittings	5	10	15	13
3480 IBM cartridges				
Qty per drawer	51	51	51	102
# of fittings	4	8	12	10
4mm DAT tapes				
Qty per drawer	124	124	124	225
# of fittings	5	10	15	21
8mm DAT tapes				
Qty per drawer	68	68	68	123
# of fittings	5	10	15	18
CD-ROM				
Qty per drawer	115	115	115	205
# of fittings	3	7	10	10
DLT tapes				
Qty per drawer	42	42	42	87
# of fittings	4	9	13	12
ZIP® PC 100				
Qty per drawer	127	127	127	231
# of fittings	5	9	14	12
(Based on average media sizes)				

Figure 58. FireKing 2-hour Data Safe Multimedia Capacities

Media type	DS1513-LG	DS1817-LG
3.5" diskettes		
Qty per drawer	264	480
# of fittings	3	4
3480 IBM cartridges		
Qty per drawer	26	45
# of fittings	2	3
4mm DAT tapes		
Qty per drawer	60	108
# of fittings	3	4
8mm DAT tapes		
Qty per drawer	60	108
# of fittings	3	4
CD-ROM		
Qty per drawer	58	108
# of fittings	2	3
DLT tapes		
Qty per drawer	18	39
# of fittings	3	3
ZIP® PC 100		
Qty per drawer	58	111
# of fittings	3	4
(Based on average media sizes)		

Figure 59. FireKing 1-hour Data Safe Multimedia Capacities

Model	Interior size			Exterior size			Weight, lbs.	Capacity, cu. ft.
	Height, in.	Width, in.	Depth, in.	Height, in.	Width, in.	Depth, in.		
DS1513-1LG	14 3/5	12 7/10	12 7/10	25 1/2	21 1/2	22 2/5	297	1.3
DS1817-1LG	17 4/5	16 3/5	17	28 3/5	15 1/2	26 3/5	429	2.8

Figure 60. FireKing 1-hour Data Safe Dimensions

interior relative humidity less than 80% for Class 125 when exposed to fire as per the Standard Time Temperature Curve for one hour to 1,700°F. It also is equipped with a high-security key lock.

Media capacities for the one-hour models are listed in Figure 59. The safes are available in two sizes. Their dimensions are listed in Figure 60.

Phoenix Safe International LLC

Phoenix manufactures two Datacare products, 1000 Series and 2000 Series, to protect data from heat and moisture. The data safes in the 1000 Series carry a one-hour fire rating, and those in the 2000 Series a two-hour fire rating.

Other features unique to each series are:

- Phoenix 1000 Series Data Safes
 - o Designed for the interior to stay below 125°F and 80% humidity during a 1,700°F fire and carry a Class 125—one-hour fire rating.
 - o Standard digital combination lock
 - o Dimensions
 - DataCare 1001
 - o External: 29" high by 18 1/2" wide by 18 1/2" deep
 - o Internal: 16" 1/4" high by 9 1/2" wide by 10 1/2" deep
 - DataCare 1002
 - o External: 39" high by 26 1/2" wide by 26 1/2" deep
 - o Internal: 26 1/4" high by 14" wide by 15 1/2" deep
 - o Weight
 - DataCare 1001—225 pounds
 - DataCare 1002—555 pounds
 - o Capacities based on a single medium
 - DataCare 1001
 - o 3.5" diskettes—394
 - o CDs in jewel cases—164
 - o 8mm cartridges—213
 - o 4mm cartridges—394
 - o DLT tapes—73
 - DataCare 1002

- o 3.5" diskettes—1,235
 - o CDs in jewel cases—513
 - o 8mm cartridges—666
 - o 4mm cartridges—1,235
 - o DLT tapes—227
- o Accessories
 - DataCare 1001—none
 - DataCare 1002—adjustable shelf
- Phoenix 2000 Series Data Safes
 - o Provides up to two hours fire protection for computer media to the Swedish NT Fire 017-120 Diskette Standard (Class 125—2 hour equivalent)
 - o Standard key lock
 - o Dimensions
 - DataCare 2001
 - o External: 17" high by 14" wide by 17 1/2" deep
 - o Internal: 10" high by 6 1/4" wide by 7 3/4" deep
 - DataCare 2002
 - o External: 24" high by 18 3/4" wide by 18 3/4" deep
 - o Internal: 15" high by 9 1/4" wide by 7 1/4" deep
 - DataCare 2003
 - o External: 30 1/2" high by 27 1/4" wide by 28 1/2" deep
 - o Internal: 19 1/2" high by 15 1/2" wide by 16" deep
 - o Weight
 - DataCare 2001—108 pounds
 - DataCare 2002—238 pounds
 - DataCare 2003—585 pounds
 - o Capacities based on a single medium
 - DataCare 2001
 - o 3.5" diskettes—80
 - o CDs in jewel cases—31
 - o 8mm cartridges—24
 - o 4mm cartridges—54
 - o DLT tapes—10
 - DataCare 2002
 - o 3.5" diskettes—180
 - o CDs in jewel cases—84
 - o 8mm cartridges—72

- o 4mm cartridges—168
- o DLT tapes—24
- DataCare 2003
 - o 3.5" diskettes—1,280
 - o CDs in jewel cases—360
 - o 8mm cartridges—532
 - o 4mm cartridges—1,000
 - o DLT tapes—120
- o Accessories
 - DataCare 2001—none
 - DataCare 2002—none
 - DataCare 2003—one shelf

Fire test specifications for Phoenix fire resistant equipment models are independently tested to a European or American test standard:

- Class 125—One hour: Requires safe to be heated to 1,700°F for one hour. Internal temperature must not rise above 125°F or 80% humidity.
- SP60: Requires safe to be heated to 1,730°F for one hour. Internal temperature must not rise above 350°F.
- NT Fire 017-120 Diskette: Requires safe to be heated to 1,859°F for two hours. Internal temperature must not rise above 125°F or 80% humidity.
- UL350: Requires safe to be heated to 1,700°F for one hour. Internal temperature must not rise above 350°F.
- UL350 Drop Test: Requires safe to be dropped from 30 feet to simulate falling through the floors of a burning building.

This company has been trading in Liverpool since 1799, though not always under the Phoenix name. Its products are distributed through Perm-A-Store, Inc.

Audio-video formats

CDs and DVDs

Lift Display, Inc.

Lift manufactures a system called DiscPlay5®. The compartments are made from slotted sheets. The advantages of these slotted sheets are:

- The proportion of perforations in the slotted sheets is almost double that of conventional perforated sheets.
- Displays are easier to clean.
- Reshelving is faster.

Its gondola model #G1200 is especially effective in displaying CDs in a relatively small footprint. Features include:

- Dimensions
 - o Height: 66 10/16"
 - o Length: 61 8/16"
 - o Depth: 52 8/16"
- Shelves: six
- Capacity: 1,200 CDs
- Material: Steel, powder-coated
- Light holder, twin armed
- Spotlight (one piece)
- Signage
- Plastic dividers in transparent green

The company has recently added a DVD version of this model with five shelves.

Videotapes

Luxor

Luxor manufactures videotape storage units in a variety of sizes and styles.

- Videotape Storage Cabinet with Shelves and Doors
 - o Dimensions: 36" wide by 13 1/2" deep
 - o Heights: 60" and 28 1/2"
 - o Shelves
 - 60" height—four, five, six, or seven shelves
 - 28 1/2" height—two or three shelves.
 - o Capacity: 30 videocassettes per shelf, depending on cassette dimension
- Videotape Storage Cabinet with Drawers
 - o Steel videotape cabinets are available in a four- or eight-drawer setup. Drawer locks are optional.
 - Capacity—each drawer holds 63 VHS tapes in the following cabinet dimensions:
 - o 19 1/2" wide by 17 1/2" deep by 26 1/2" high
 - o 25" wide by 29" deep by 25 5/8" high
 - o 25" wide by 29" deep by 51 1/4" high
 - o Locking drawer videotape storage cabinets with steel frame and recessed base.
 - Width: Available in 19 1/2" and 39" widths
 - Capacity: 30 VHS tapes per drawer in 19" width and 60 VHS tapes in 39" width

- Dimensions of cabinets
 - o 19 1/2" wide by 17 1/2" deep by 37 3/4" high
 - o 39" wide by 17 1/2" deep by 11 1/4" or 26 1/2" high
 - o 39" wide by 17 1/2" deep by 37 3/4" high

Motion picture film and videotapes

Automated Storage & Retrieval Systems of America (ASRS)

Elecompack®, manufactured by ASRS, was released in 1965. Paramount Pictures selected Elecompack to store its motion picture film cans and videotapes (see Figure 61). Shelving for these media was custom-designed by ASRS staff.

ASRS designed, engineered, and fabricated 328 mechanically assisted carriages 19' long by 10' high. These carriages house in excess of 400,000 film canisters in eight climate-controlled vaults.

Flexibility or adjustability of storage compartments is one of the criteria often used to select ASRS over its competitors. The basic premise of the Elecompack film storage application is that it allows film cans of various thicknesses to be housed together in individual compartments adjustable vertically without tools. The benefits of this system are maximum use of space and better air circulation.

The Canadian Broadcasting Corp. also uses this application. The ultimate scope of its project is 55,000 linear feet of shelving in 11 rooms with many different formats of media, including books, files, audio recordings, videos, film cans, sheet music scores, and wigs.

The project architect's comment about the benefits of this solution was: "The technology is changing so rapidly that it is impossible to predict what formats we're going to be using in the future..."



Figure 61. Paramount Pictures Motion Picture Film Storage Using Elecompack®

Microfilm formats

Slides

Because technology now can provide better ways to provide the high-quality photographs that slides previously made possible, finding equipment for slide storage is difficult.

One of the well-known manufacturers of slide storage equipment, Multiplex Display Fixture Co., no longer manufactures this product. Its remaining inventory has been available at substantially reduced prices.

If slide storage is needed, contact manufacturers and distributors to see if they still have pieces available or contact institutions that may be converting their slides to electronic storage for possible acquisition of their old equipment.

Microfiche

Russ Bassett

Cabinets. Russ Bassett's VisuFlex VF-9 cabinet provides high-density, organized storage for microfiche. Each drawer is configured with three rows of front-to-rear filing with an adjustable mechanical compressor in each row. The compressors keep the fiche flat and upright and can be moved as each row is filled.

The nine-drawer cabinet measures 51 5/8" high by 21 1/4" wide by 28 5/8" deep and holds 115,800 microfiche.

Roll film. Russ Bassett's VisuFlex VR-11 cabinet provides storage for both 16mm and 35mm roll film. Each drawer is configured with five rows of front-to-rear filing with plenty of finger room between rows to allow easy retrieval of the microfilm.

The 11-drawer cabinet measures 51 5/8" high by 25" wide by 28 5/8" deep and holds 1,430 16mm and 880 35mm rolls of film.

Carousels. Russ Bassett's high-density steel roll film carousel from VisuFlex is the highest capacity carousel for this medium available (see Figure 62). This unit is designed for storing large collections of film where rapid access and retrieval is critical. For safety during rotation, the oversized 28" square footprint prevents tipping.

The integrated floor base includes four concealed heavy-duty ball bearing swivel casters so the carousel can be easily moved.

These roll film carousels are built with heavy-gauge steel bodies and fully welded wire racks that provide an individual slot for each 16mm carton or cartridge. The 15° rack angle holds rolls in place and simplifies label viewing.

This carousel measures 75" high by 28" wide by 28" deep and holds 800 rolls of 16mm film.

Multiplex Display Fixture Co., 1555 Larken Williams Road, Fenton, MO 63026-3008; tel: 800-325-3350; fax: 636-326-1716; contact: Suzanne Schlittler



Figure 62. Russ Bassett 16mm Roll Film Steel Carousels

16mm and 35mm roll film

By eliminating all unnecessary aisle space, Russ Bassett's Gemtrac® system can accommodate up to 7,140 rolls of film in 25 square feet. A single drawer holds 595 rolls of film. A conventional roll film cabinet holds 130 rolls per drawer.

Two media specific shelf designs are available. Aluminum dividers are available only for 16mm collections, providing individual slots for each item. Rolls are filed vertically. Plastic compressors accommodate both 16mm and 35mm roll film. Cartons or cartridges are filed vertically on open shelves. Each item is held in place by an overhead plastic compressor that also serves to reserve space for each cartridge. This system is ideal for active collections.

Paper formats

Cabinets

FireKing International

FireKing manufactures fireproof vertical and lateral files. These files carry Underwriters Laboratories (UL) Class 350 one-hour insulated Records Container with impact rating. This rating means this equipment passed the UL 1,700° fire endurance test, 2,000° explosion hazard test, and 30' drop/impact test. It also offers an UL-rated two-hour file it claims is the only one in the industry.

This equipment has a lifetime warranty on all mechanical or operable parts. FireKing will pay all associated labor costs for the repair or replacement of these parts for two years from the date of purchase. If a FireKing file cabinet sustains any damage while protecting records from a fire, FireKing will replace it free of charge.

These cabinets are not waterproof. When they are exposed to heat, however, the insulation expands, tightly sealing all joints and making them water resistant. An overview of product features includes:

- Vertical file features
 - o 31" + a fraction deep
 - o Available in two-, three-, and four-drawer sizes
 - o Standard UL-listed high security Medeco® lock. A variety of additional locking options are available.
 - o Accessories available for storing the following formats:
 - 3" high by 5" wide cards
 - 4" high by 6" wide cards
 - 5" high by 8" wide cards
 - 6" high by 9" wide cards
 - 9 1/2" high by 6" wide papers
 - 9 1/2" high by 4" wide papers
- Lateral file features

- o Designed for both letter and legal hanging files (No additional frames are required.)
 - o Available in 31", 38", and 44" widths
 - o Available in two-, three-, and four-drawer sizes
 - o Standard UL-listed high security Medeco lock (Many locking options are available.)
- Budget models
 - o FireKing 25®
 - 25" deep
 - Available in two- and four-drawer models
 - For letter or legal widths
 - Standard UL-listed Medeco key lock
 - o FireKing Turtle®
 - 22" deep
 - For letter or legal widths
 - Standard four-pin key lock
 - Also available in a two-drawer lateral file for two rows of front-to-back letter filing, one row of side-to-side filing, or a combination of letter and legal filing
- FireKing Protection Plus® Files
 - o Protection Plus Safe-In-A-File
 - 2.4-cubic-foot capacity
 - Inner safe door constructed of 1/4" steel
 - Internal relocking device
 - UL-listed Group II combination lock
 - o Protection Plus Electronic Lock File Features
 - Six-digit combination code
 - Master code and up to eight different user codes
 - User code can be changed or deleted in seconds.
 - Drawers lock automatically when closed.
 - UL-listed Group II combination lock with internal relocking device
- FireKing Two-hour Vertical Files
 - o Additional fireproof protection provided by Thermocell II®, a proprietary insulation that provides twice the protection
 - o Available in both letter and legal sizes
 - o Standard UL-listed, high-security Medeco key lock
 - o Available in two-, three-, and four-drawer models
- FireKing Card, Check and Note Files
 - o Available in four- and six-drawer models

- o Standard UL-listed, high-security Medeco key lock (Many locking options are available.)
- o Option of two- or three-section inserts and card trays
 - Two-section insert for 5" high up to 9 3/4" wide cards
 - Three-section insert for 5" high up to 6 1/2" wide cards
 - Full-depth card tray for 5" high by 9" wide cards (two per drawer)

Carousels

Ultimate Office

Ultimate Office provides a unique system for housing paper documents kept in binders. Rotating carousels are available in different heights and may be freestanding or housed in a cabinet. Each tier of the carousel holds 6'6" of binders, rotates independently of the others, and is accessible from all sides. The carousel has a steel center frame and laminated light gray finish (see Figure 63).

Carousels are available from one tier with a worktop to five tiers in height. The carousel diameter is 31 1/2" and heights range from 17 1/4" to 75".

Cabinets are equipped with sliding tambour doors that glide easily and retract into the cabinet without taking up additional floor space (see Figure 64). A pullout work shelf is available, and all cabinets lock. Cabinet dimensions are 33 1/2" wide by 35" deep, and heights range from 35 1/2" to 83 1/2".

The Ultimate Office binder carousel capacity is:

<i>Binder type</i>	<i># per tier</i>
1"	72
1 1/2"	48
2"	44
BestBuilt	36
3"	28

For use with its carousels, Ultimate Office sells BestBuilt® binders because of these advantages:

- Three-position rings for easy, complete access to every page
- Rings guaranteed not to gap
- No split or torn spines
- Easier to load papers
- Recessed one-touch release
- Easy-to-load spine labels
- Easier page turning
- Index tabs that don't stick out
- Ergonomically contoured spines for effortless accessibility
- Lifetime guarantee



Figure 63. Ultimate Office Binder Carousel



Figure 64. Ultimate Office Binder Carousel with Cabinet

Large documents

Cabinets, vertical files for large documents

Easi File Art-N-Photo®

The Easi File Art-N-Photo system is designed for housing photographs, negatives, and art boards. It uses suspended polyethylene envelopes available in single or multiple compartment configurations. Each envelope is suspended on a steel hanger that inserts into open frame files. Three frame sizes are available, one a desktop unit, the other two are floor models with dimensions shown in Figure 65.

Part #	Height, in.	Width, in.	Depth, in.	Weight, lbs.
AP72	78	24	27	40
AP36	45	24	27	35
SP18	21	15	14	6

Figure 65. Easi File Art-N-Photo® File Dimensions



Figure 66. Easi File 78" High Art-N-Photo® File

The largest of these frames is shown in Figure 66. This frame can be organized in many ways, depending on the number of items in each size category in the collection to be housed. The frame may either be used to hold multicompartment envelopes, or it can be divided into as many as four sections to hold smaller envelopes. Figure 67 illustrates the various configurations possible.

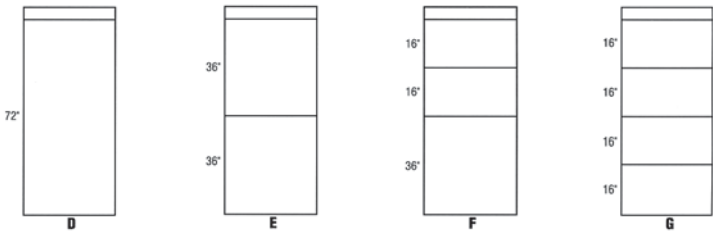


Figure 67. Easi File Configurations for 78" High Art-N-Photo® File

The envelopes for this system are made of 4-mil polyethylene, heat-sealed as required for the compartment configuration. Steel hangers are inserted through the top edge of the envelopes to suspend the envelopes in the files. The envelopes range in size from 24"x14" to 24"x36" with the number of compartments in the envelopes ranging from one to five.

A library in the state of New York is working with Easi File to design this equipment to hold bags for storing CDs and record albums regularly circulated. It plans to acquire 26 of the 6' Art-N-Photo frames for this purpose.

Easi-File has many other equipment models to store large formats, both wall-hung and floor types, for smaller collections.

Foster Manufacturing Co.

Foster Manufacturing Co. makes a similar system to Easi File's. Its vertical vinyl envelope filing system is available in seven sizes for storing materials from 12 3/4"x17" to 31 1/2"x 43 3/4". These envelopes are fabricated from 8- and 12-gauge vinyl. For use with multimedia, self-adhesive heavy vinyl pockets attach to the inside or outside of the vinyl envelope.

These vinyl pockets are available for 3.5" disks, 5.25" optical disks and CDs, and Syquest disks (pocket measures 9"x11").

Racks for these envelopes are available in two sizes: 36" wide by 20" deep by 73 1/2" high and 36" wide by 20" deep by 86" high. Cabinets—open or closed—are available in two sizes: 36" wide by 18" deep by 88" high and 36" wide by 30" deep by 88" high.

Compact system with movable aisles for cabinets, shelving, and racks

Spacesaver

Spacesaver's Mobile Art Rack System consists of mobile bases with frames constructed of mesh on which framed paintings, photographs, prints, and other media can be hung (see Figure 68). The mobile bases come equipped with in-rail anti-tip devices. The wheel sections can be nested for maximum storage density.

Double-faced, woven steel mesh allows for hanging artwork on both sides of the rack without interference. The mesh is flush with the posts, which allows for a flexible arrangement. The powder-coat paint finish on the art racks and mobile bases provides a smooth, hard finish that does not off-gas.

Spacesaver claims its Mobile Art Rack Systems can store the same amount of material as the conventional pullout art racks in almost half the floor space.



Figure 68. Spacesaver Display Rack System

Automated Storage & Retrieval Systems of America (ASRS)

ASRS also manufactures an art rack system. Figure 69 shows is an installation at Yale University.



Figure 69. ASRS Elecompact® Art Rack System

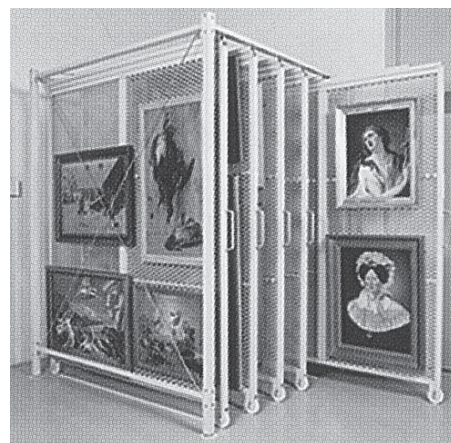


Figure 70. Montel ModulArt® System

Montel, Inc.

Montel manufactures an art panel system called ModulArt® (see Figure 70).

Multimedia formats

Cabinets



Figure 71. Ultimate Office Multimedia Storage Cabinet

Ultimate Office

Ultimate Office has a multimedia tambour door cabinet that gives complete access to CDs, DVDs, videos, audiocassettes, Jaz disks, ZIP disks, floppies, and other formats (see Figure 71). Rollout drawers extend fully to allow access to media at the back of the drawer. Each drawer includes five dividers. All cabinets lock.

These cabinets are available in five- and six-drawer units. Five drawers provide for CD storage and six drawers for VHS tapes or audiocassettes. Each cabinet can hold a single type medium or any combination. Adjustable bracket design allows for positioning of drawers in 1" increments. Cabinets measure 39" wide by 18" deep by 40" high. Ultimate Office has many accessories for storing multimedia in these cabinets.

If cabinets are used for a single medium, capacity is:

- VHS tapes
 - o Drawer—56
 - o Six-drawer cabinet—336
- Audiocassettes
 - o Drawer—138
 - o Six-drawer cabinet—828
- Compact disks
 - o Drawer—168
 - o Five-drawer cabinet—840

Luxor

Luxor manufactures two series of multimedia storage cabinets, the 19 Series Modules and the 39 Series Modules (see Figure 72). The company provides a large choice of drawer inserts to meet AV media storage requirements. These inserts can be changed as media needs change.

These inserts are mini cabinets of one-, two-, three-, or four-drawer modules that can be stacked. For alignment, the modules have dimples into which the units are set. For stability, the modules are bolted together. For the 39" wide modules, two 19" wide modules may be placed side by side. These modules must not be stacked higher than 5' to ensure stability and safety.

This equipment is constructed of electronically welded steel. Drawers have double sidewalls for extra strength. The finish is baked-on powder-coat paint. The cabinet housing is available in charcoal color with a selection of seven colors available for the drawers.

Locks are standard on the 5" and 7" drawers.

19 Series Modules—19 1/2" wide by 17 1/2" deep

Drawers are available in seven heights. Each height drawer is available in a number of models for housing a variety of media.

- 3 1/2" high drawer models (one drawer, 2 1/4" interior height) are available for the following media:
 - o Individual slides
 - o Slide groups
 - o Cassettes without boxes
 - o Empty drawers
- 6" high drawer models (two drawers, 2 1/4" interior height) are available for the following media:
 - o Individual slides
 - o Slide groups
 - o Cassettes without boxes
 - o Empty drawers

- 6 1/2" high drawer models (one drawer, 5" interior height) are available for the following media:
 - o Videotape in slip case
 - o Cassettes without boxes
 - o 1/2" data tapes/cassettes
 - o Data tape/ZIPs/1/2" tape
- 9" high drawer models (one drawer, 7 1/2" interior height) are available for the following media:
 - o Videotape in pad case
 - o CD in HD slipcase
 - o CD/Jaz/Syquest
 - o Syquest/5 1/4" tape
 - o Data tapes/ZIPs/1/2" tape
- 10 3/4" high drawer models (four drawers, 2 1/4" interior height) are available for the following media:
 - o Individual slides
 - o Slide groups
 - o Cassettes without boxes
 - o Empty drawers
- 11 3/4" high drawer models (two drawers, 5" interior height) are available for the following media:
 - o Videotape in slip case
 - o Cassettes without boxes
 - o 1/2" data tapes/cassettes
 - o Data tapes/ZIPs/1/2" tape
- 13 1/4" high drawer models (three drawers, 4" interior height) are available for the following media:
 - o 4mm data tapes
 - o 3 1/2" diskettes
 - o Data tapes/cassettes in box
 - o Empty drawers

39 Series Modules—39" wide by 17 1/2" deep

- 9" high drawer models (one drawer, 7 1/2" interior height) are available for the following media:
 - o Videotape in pad case
 - o CD in HD slipcase
 - o CD/Jaz/Syquest
 - o Syquest/5 1/4" tape
 - o Data tapes/ZIPs/1/2" tape

- 11 1/4" high drawer models (four drawers, 2 1/4" interior height) are available for the following media:
 - o Individual slides
 - o Slide groups
 - o Cassettes without boxes
 - o Empty drawers
- 11 3/4" high drawer models (two drawers, 5" interior height) are available for the following media:
 - o Videotape in slip case
 - o Cassettes without boxes
 - o 1/2" data tapes/cassettes
 - o Data tapes/ZIPs/1/2" tape
- 13 1/2" high drawer models (three drawers, 4" interior height) are available for the following media:

- o 4mm data tapes
- o 3 1/2" diskettes
- o Data tapes/cassettes in box
- o Empty drawers

The following information describes the drawer capacities for the various media.

- Cassettes
 - o Without boxes
 - Drawer inserts for cassettes without boxes are filed in individual slots in 2 1/4" drawers. Cassettes file slanted on their sides with the upper part of the cassettes in view for identification.
 - o 19 1/2" wide drawers hold 72 cassettes.
 - o 39" wide drawers hold 144 cassettes.
 - Drawer inserts for cassettes without boxes in 5" drawers are filed on end in individual numbered slots. Matching numeral labels are furnished by Luxor.
 - o 19 1/2" wide drawers hold 72 cassettes.
 - o 39" wide drawers hold 144 cassettes.
 - o In boxes
 - Drawer inserts for 4" drawers are designed to file cassettes in boxes horizontally on their side for easy label viewing. These inserts include six dividers to separate the cassettes into groups.

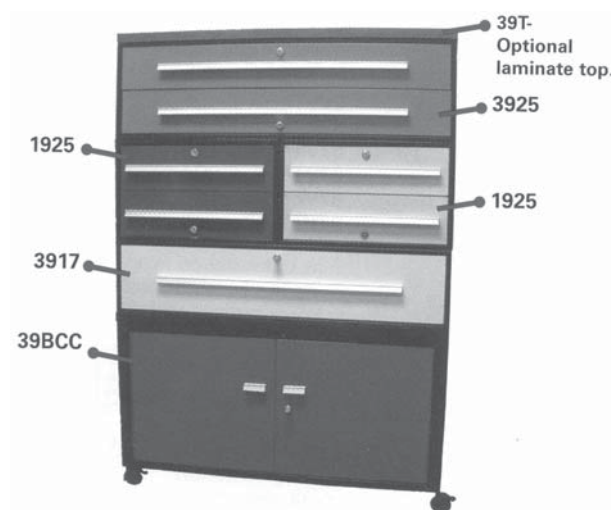


Figure 72. Luxor Audiovisual Media Storage Cabinet

- o 19 1/2" wide drawers hold 160 cassettes.
 - o 39" wide drawers hold 320 cassettes.
- Dividers for 5" drawers are designed to file cassettes on end with bookend followers.
 - o 19 1/2" wide drawers hold 142 cassettes.
 - o 39" wide drawers hold 286 cassettes.
- Compact Disks
 - o Drawer inserts for 7 1/2" drawers are designed to file CD ROMs, music CDs or videos, DVDs without jewel cases in special high-density protective jackets.
 - 19 1/2" wide drawers include 100 CD jackets and two out-file markers and hold 420 compact disks.
 - 39" wide drawers include 200 CD jackets and four out-file markers and hold 840 compact disks.
 - o Dividers for 7 1/2" drawers file compact disks in rows. Accessories include row dividers and followers.
 - 19 1/2" wide drawers hold 120 compact disks.
 - 39" wide drawers hold 240 compact disks.
- Computer disks—Dividers for 3 1/2" computer disks file them in rows in 4" drawers. Accessories include row dividers, follower, Mylar group dividers, and out-file markers.
 - o 19 1/2" wide drawers hold 476 computer disks.
 - o 39" wide drawers hold 952 computer disks.
- Data tapes
 - o 4mm data tapes file in 4" drawers. Drawer inserts are designed so each cavity slot holds one 4mm data tape.
 - 19 1/2" wide drawers hold 80 data tapes.
 - 39" wide drawers hold 160 data tapes.
 - o 8mm data tapes
 - Drawer inserts for 4" drawers are designed to file the tapes horizontally on their side for easy label viewing. These inserts include six dividers to separate the 8mm data tapes into groups.
 - o 19 1/2" wide drawers hold 72 8mm data tapes.
 - o 39" wide drawers hold 144 8 mm data tapes.
 - Dividers for 5" drawers are designed to file 8mm data tapes on end with bookend followers.
 - o 19 1/2" wide drawers hold 142 8mm data tapes.
 - o 39" wide drawers hold 286 8mm data tapes.
 - Drawers 5" or 7 1/2" with front-to-back dividers and plastic book-end followers hold the following quantities:
 - o 19 1/2" wide drawers hold 84 8mm data tapes.
 - o 39" wide drawers hold 168 8mm data tapes.

- Disks—5 1/4"—Dividers for 7 1/2" drawers file 5 1/4" disks in rows. Accessories include row dividers, followers, Mylar group dividers, and out-file markers.
 - o 19 1/2" wide drawers hold 400 disks.
 - o 39" wide drawers hold 800 disks.
- Jaz cartridges—Dividers for 7 1/2" drawers file Jaz cartridges in rows. Accessories include row dividers and followers.
 - o 19 1/2" wide drawers hold 51 Jaz cartridges.
 - o 39" wide drawers hold 102 Jaz cartridges.
- Microfiche—Luxor has discontinued manufacture of its microfiche storage cabinets.
- Slides
 - o Drawer inserts for individual slides are designed so that each cavity slot holds up to three ready-mount slides or a single glass-mount. Index and file slides in numbered slots.
 - 19 1/2" wide drawers hold 318 and up to 954 slides.
 - 39" wide drawers hold 636 and up to 1,908 slides.
 - o Drawer inserts for slide groups are designed to file 2"x2" cardboard, glass, or plastic mounted slides in groups in 2 1/4" drawers.
 - 19 1/2" wide drawers with 24 fiber dividers hold 1,400 ready-mounts or 700 glass-mounts.
 - 39" wide drawers with 48 fiber dividers hold 2,800 ready-mounts or 1,400 glass-mounts.
- Syquest cartridges—Dividers for 7 1/2" drawers file Syquest cartridges in rows. Accessories include row dividers and followers. Dividers that are also designed for 5 1/4" disks include Mylar group dividers and out-file markers as additional accessories.
 - o 19 1/2" wide drawers hold 32 Syquest cartridges.
 - o 39" wide drawers hold 80 Syquest cartridges.
- Tape cartridges 1/2"
 - o Dividers for 5" drawers are designed to file 1/2" tape cartridges on end with bookend followers.
 - 19 1/2" wide drawers hold 44 tape cartridges.
 - 39" wide drawers hold 88 tape cartridges.
 - o Drawers 5" or 7 1/2" with front-to-back dividers and plastic bookend followers hold the following quantities:
 - 19 1/2" wide drawers hold 68 tape cartridges.
 - 39" wide drawers hold 136 tape cartridges.
- Videotape—These drawers include front-to-back dividers and plastic book-end followers.
 - o 19 1/2" wide drawers' capacities are:
 - 30 VHS

- 36 beta tapes in slip (cardboard) cases
- 22 standard 1" video tapes in plastic cases
- 14 to 16 (3/4") pneumatic videotapes. These tapes may be in plastic cases, slip (cardboard) cases, or small (3M type) cartridges.
- o 39" wide drawers' capacities are:
 - 60 VHS
 - 72 beta tapes in slip (cardboard) cases
 - 60 standard 1" videotapes in plastic cases
 - 33 to 44 (3/4") pneumatic videotapes. These tapes may be in plastic cases, slip (cardboard) cases, or small (3M type) cartridges.
- ZIP disks—Drawers for this medium are 5" and 7 1/2" high and include front-to-back dividers and plastic bookend followers. Capacities are:
 - o 19 1/2" wide drawers hold 144 ZIP disks.
 - o 39" wide drawers hold 288 ZIP disks.

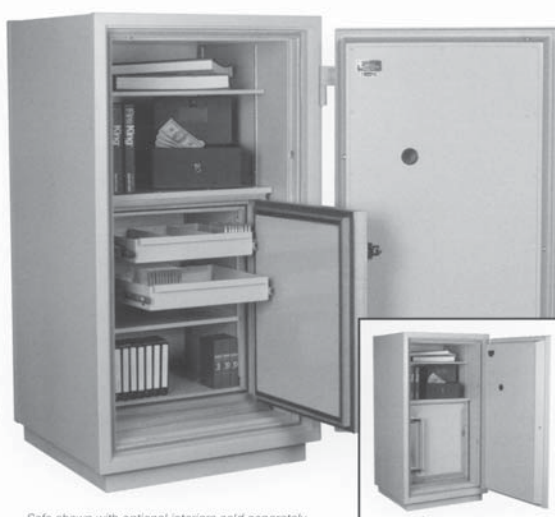
FireKing International

For extremely valuable multimedia, FireKing International manufactures a mixed media safe (see Figure 74). For its capacities, see Figure 73.

The top section is a UL Class 350 one-hour Impact Rated safe with more than 6 cubic feet of storage for important paper records and files. The bottom is a UL Class 125 3-hour Impact Rated data media compartment to hold CDs, tapes, disks, and other media.

Other features include the following:

- Dimensions
 - o Exterior—59 1/4" high by 32 1/16" wide by 31" deep
 - o Interior



Safe shown with optional interiors sold separately.

Figure 74. FireKing Mixed Media Safe

Media type	DP2150-M
3.5" diskettes	
Qty per drawer	536
# of fittings	6
3480 IBM cartridges	
Qty per drawer	51
# of fittings	4
4mm DAT tapes	
Qty per drawer	125
# of fittings	7
8mm DAT tapes	
Qty per drawer	72
# of fittings	7
CD-ROM	
Qty per drawer	123
# of fittings	4
DLT tapes	
Qty per drawer	42
# of fittings	5
ZIP® PC 100	
Qty per drawer	128
# of fittings	5
(Based on average media sizes)	

Figure 73. FireKing Mixed Media Safe Multimedia Capacity

- Paper compartment—19 1/2" high by 26 3/4" wide by 20 29/32" deep
- Media compartment—24 5/16" high by 18 5/8" wide by 16 11/16" deep
- Weight—1,290 pounds

Shelving

Most shelving manufacturers provide pullout bins to house multimedia formats.

Spacesaver

Spacesaver manufactures specialty shelves for all types of media. These shelves are used with its standard cantilever library shelving frames. The following information is based on shelves for its 36" wide frame. Some of the shelving types also are available in 24" and 30" widths.

- VHS, CD, and paperback shelf
 - Actual shelf depth: 6"
 - Vertical spacing: 10" center center-to-center for standard VHS tapes.
 - Shelf is slotted on 1" centers and includes one slotted backstop and four dividers per shelf.
 - Capacity: 26 VHS tapes or 80 CDs
- Two-tier, sloped VHS & CD shelf (see Figure 75)
 - Overall shelf depth: 14"
 - Actual end bracket height: 11"
 - Vertical spacing: 17" center-to-center for standard VHS tapes.
 - Capacity: 56 VHS tapes (28 per tier) or 168 CDs (84 per tier)
- VHS and CD Wire Rack (see Figure 76)
 - Actual rack depth: 6"
 - Vertical spacing: 10" vertical center-to-center for standard VHS tapes.
 - Capacity—26 VHS tapes or 78 CDs
- Two-tier audiocassette tape shelf
 - Dimensions
 - Adjustable shelf: Actual shelf depth 6", overall height 7"
 - Base shelf: Actual shelf depth 6", overall height 10"
 - Capacity: 100 audiocassette tapes (50 per tier)
- Two-tier microfilm shelf
 - Dimensions
 - Adjustable shelf: Actual shelf depth 9", overall height 7"
 - Base shelf: Actual shelf depth 9", overall height 10"
 - Vertical spacing: 10" vertical center-to-center
 - Capacity: (40) 1 3/4" wide by 4" deep by 4" high microfilm boxes (20 per tier)
- Multimedia Browsing Box

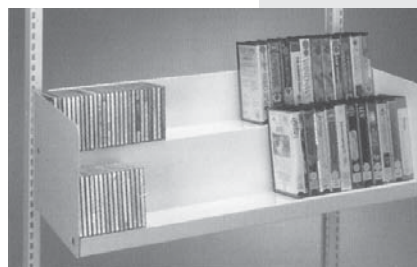


Figure 75. Spacesaver 2-tier, Sloped VHS & CD Shelf

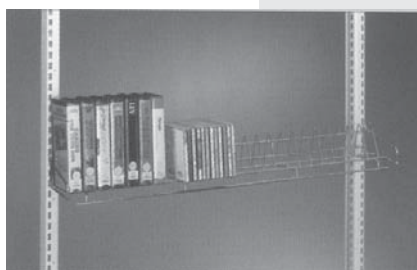


Figure 76. Spacesaver VHS & CD Wire Rack

- o Dimensions: 12" deep by 6 1/4" high
- o Accessories
 - Includes black nonskid floor mat
 - Optional snap-in wire dividers
- o Vertical spacing: 10" center-to-center
- o Capacity: 42 VHS tapes or 100 CDs



Figure 77. Spacesaver Multimedia Browsing Box



Figure 78. Spacesaver Zigzag Display Backstop



Figure 79. Spacesaver 6-tier Newspaper Rack



Figure 80. Spacesaver Media Bag Rack

- Two-tier Multimedia Browsing Box (divider-type) with snap-in wire dividers—also available in one-tier model (see Figure 77)
 - o Dimensions: 15" deep by 8 1/2" high
 - o Accessories
- Includes two black, nonskid floor mats
- Optional dividers: Number required per tier for each medium:
 - o CDs—5
 - o VHS tape—5
 - o Microfilm boxes—7
 - o Audiocassette tapes—11
- Zigzag Display Backstop (see Figure 78)
 - o Purpose: For merchandising a variety of audiovisual and paperback media
 - o Height: 3 3/4"
- Six-tier newspaper rack (see Figure 79)
- Media bag rack
 - o Dimensions
- For media bags up to 12" deep: Actual end bracket depth—10", shelf depth—6" (see Figure 80)
- For media bags up to 20" deep: Actual end bracket depth 12", shelf depth—10"

High-density side-to-side sliding shelving

Spacesaver

Spacesaver has two types of side-to-side sliding shelving: Lateral (Bi-File®) Systems and QuickSpace® systems (see Figures 81 and 82).

The Bi-File system contains storage units that travel back and forth on moveable carriages. The system provides the same storage capacity as stationary cabinets in less than half the floor space. Modular units can be added, moved, and relocated as required.



Figure 81. Spacesaver Lateral (Bi-File®) Systems



Figure 82. Spacesaver QuickSpace® Systems

The QuickSpace Systems are designed to fit in tight spaces, more than doubling the storage capacity of conventional files and shelving. No aisle is required. Units move in and out without the use of a fixed rail system.

Racks

Foster Manufacturing Co.

Foster Manufacturing Co. has developed Clear Files with Z-Stands designed to hold various types of media and graphics (see Figure 83). These files slide smoothly and silently on molded plastic hangers that lock onto racks suspended from the Z-Stands.

The Clear Files are manufactured from sturdy 200 micron polypropylene that is pH neutral, antistatic, and nonstick for protecting photographs, film, original art, and other sensitive materials. These files also may be used to store CDs, disks, transparencies, and other multimedia.

- Each Clear File contains a pH neutral white liner creating two storage compartments and carrying a file title.
- Slot tabs easily attach to the Clear File for indexing.
- Strong welds protect file contents from dust and a tuck-in front flap allows easy access.
- Velcro tabs may be added to secure the flaps for storing bulky items.

Clear Files are available in three sizes:

- 16 1/2"x11 5/8" with two compartments
- 16 1/2"x11 5/8" with two compartments and four pockets
8 3/4"x7 3/8"
- 26 1/8"x18 1/2" with two compartments

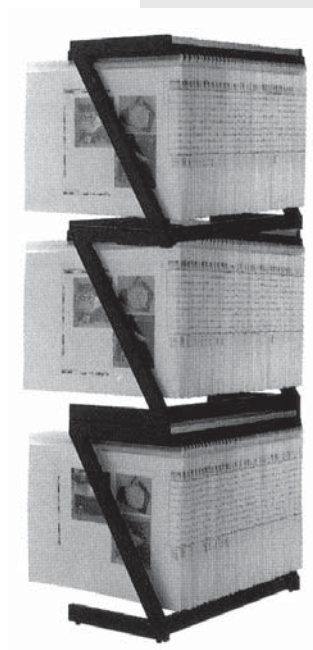


Figure 83. Foster Z-Stands

Z-Stands are available in two sizes: 31 1/2" wide by 16" deep by 20 1/2" high and 31 1/2" wide by 16" deep by 26" high. They may be stacked up to three high.

Since these units merely rest on the canopy of the unit below without any attachment, stability in areas with seismic activity is questionable. In response to a concern about the units toppling if someone were to accidentally bump into them, a company spokesperson was confident this type incident would not be a problem because of the weight of the units.

Multiequipment types

Media formats	Cabinets capacity	Shelving/racks capacity	Slidetrac 5x3 capacity	Gemtrac capacity
Data media formats ("discrete slot" storage)				
4mm	3,276	893	11,609	10,152
8mm	3,276	555	7,215	6,216
DLT, no box	1,881	434	5,642	4,030
DLT, in box	1,215	459	5,967	4,050
LTO Ultrium	1,496	549	7,137	5,040
3570 Magstar	—	987	12,831	7,520
3480/90/3590	1,539	595	7,735	5,600
CD/DVD, jewelcase	1,920	845	10,985	6,240
Professional audio video formats (bulk filing—no slots)				
Small tape				
Mini DV	9,240	1,470	19,110	16,800
4mm	6,370	1,064	13,832	12,096
8mm	3,640	630	8,190	12,096
Audiocassette	4,032	765	9,945	8,568
DVC pro, sml	3,780	645	7,267	6,192
DVC pro large	3,024	559	7,267	6,192
DVCam, mini	3,654	705	9,165	7,896
DVCam, large	2,079	559	7,267	6,192
Medium tape				
VHS, sleeve	1,045	297	3,861	3,564
VHS, libr box	810	279	3,627	2,700
Beta, small	972	280	3,640	3,360
D2, small	585	198	2,574	1,980
Large tape				
Beta, large	490	196	2,548	1,344
3/4" U-Matic	392	161	2,093	1,288
D2, large	273	132	1,716	1,056
Discs				
CD/DVD, jewelcase	3,528	1,204	15,652	9,520
DVD, album	1,960	560	7,280	4,032
Microfilm formats (dedicated units)				
16mm	1,560	495	—	6,732
35mm	960	300	—	4,284
Microfiche	158,400	—	—	—
Aperture cards	96,500	—	—	—

Russ Bassett

Russ Bassett manufactures cabinets, shelving/racks, and high-density storage units for housing multimedia.

Figure 84 provides an overview of its products with media capacities for each type.

Figure 84. Russ Bassett Equipment Types Capacity Chart

Side-to-side combination sliding shelving/drawers

Russ Bassett

Gemtrac Custom Design—To address nonstandard and unusual storage requirements, Russ Bassett has Universal Gemtrac custom designed to the dimensions, weight, and other requirements of the specific collection to be stored. Six shelf sizes are available to provide media fit and maximum filing density.

Montel, Inc.

Montel also manufactures a lateral filing system called Quadral®, which is ideal for confined rooms or near walls. Sections can be added either in front or on each side of the system. Its dimension are shown in Figure 85.

Other design details include:

- Sliding base and decking are 2" high
- Steel track with aluminum subrail treated against oxidation
- Levelers
- System's basic frame is steel
 - o Shelves: 18-gauge
 - o Shelving: 20-gauge
 - o Carriage: 12-gauge
- Wheels: 3" diameter hard steel ball-bearing wheels
- Anti-tip guide rail on top of each shelving section
- Capacity of 750 pounds per linear foot

Depth, in.	Width, in.	Height, in. Cabinet style	Height, in. Quadral overall
12	30	76	81
15	36	85	90
16	39 3/8	88	93
18	42		

Figure 85. Montel Quadral® Lateral Filing System Dimensions