

# Memorex 410 and 415 Fixed/Removable Cartridge Disc Drives.



Working  
Within the  
Systems

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# The 410 and 415 Fixed/Removable D

## The New Standard in Convenient, C

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The Memorex 400 Series fixed/removable cartridge disc drives provide a choice of 12.8 or 19.2 megabytes of storage capacity and offer high reliability, media removability, and high performance in a single, compact package.

By using a unique design approach, these drives provide 5.2 megabytes of formatted data on a removable 5.25-inch cartridge along with an additional formatted 5.2 (Model 410) or 10.4 (Model 415) megabytes on a fixed 5.25-inch disc. Bezel size, mounting holes and interface are fully compatible with industry-standard 5.25-inch disc drives, allowing ease of upgrade for existing products. The small physical size and powerful performance also make the drives the ideal choice for new systems in development.

By combining proven technologies with designed-in reliability, convenience and cost efficiency, the Memorex 400 Series represents a state-of-the-art solution to small system requirements for data storage and integral back-up.

### **Reliability Features**

A unique head slider assembly and innovative mechanical design are combined to provide a significant advance in high-integrity data storage. Dynamic loading of the heads prevents contact with the disc surfaces, ensuring greater data reliability and preventing head or media damage. Read/write heads are fully retractable, giving safe media insertion combined with protection of both heads and media in case of power loss. Use of head retraction allows the removable cartridge to be self-sealing for further protection of the media against contamination. The heads and clean-air enclosure are sealed by a protective door whenever a cartridge is not present in the drive.

An embedded servo voice coil actuator positions the heads accurately, ensuring media interchangeability and excellent data integrity. The drive requires no routine maintenance. With a calculated MTBF of 8000 hours, the 400 Series' reliability significantly exceeds that of system solutions using independent fixed and removable drives. A mean-time-to-repair of 30 minutes ensures maximum system availability.

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# MEMOREX

# iscDrives from Memorex OEM: Most-Efficient High Reliability Back-up

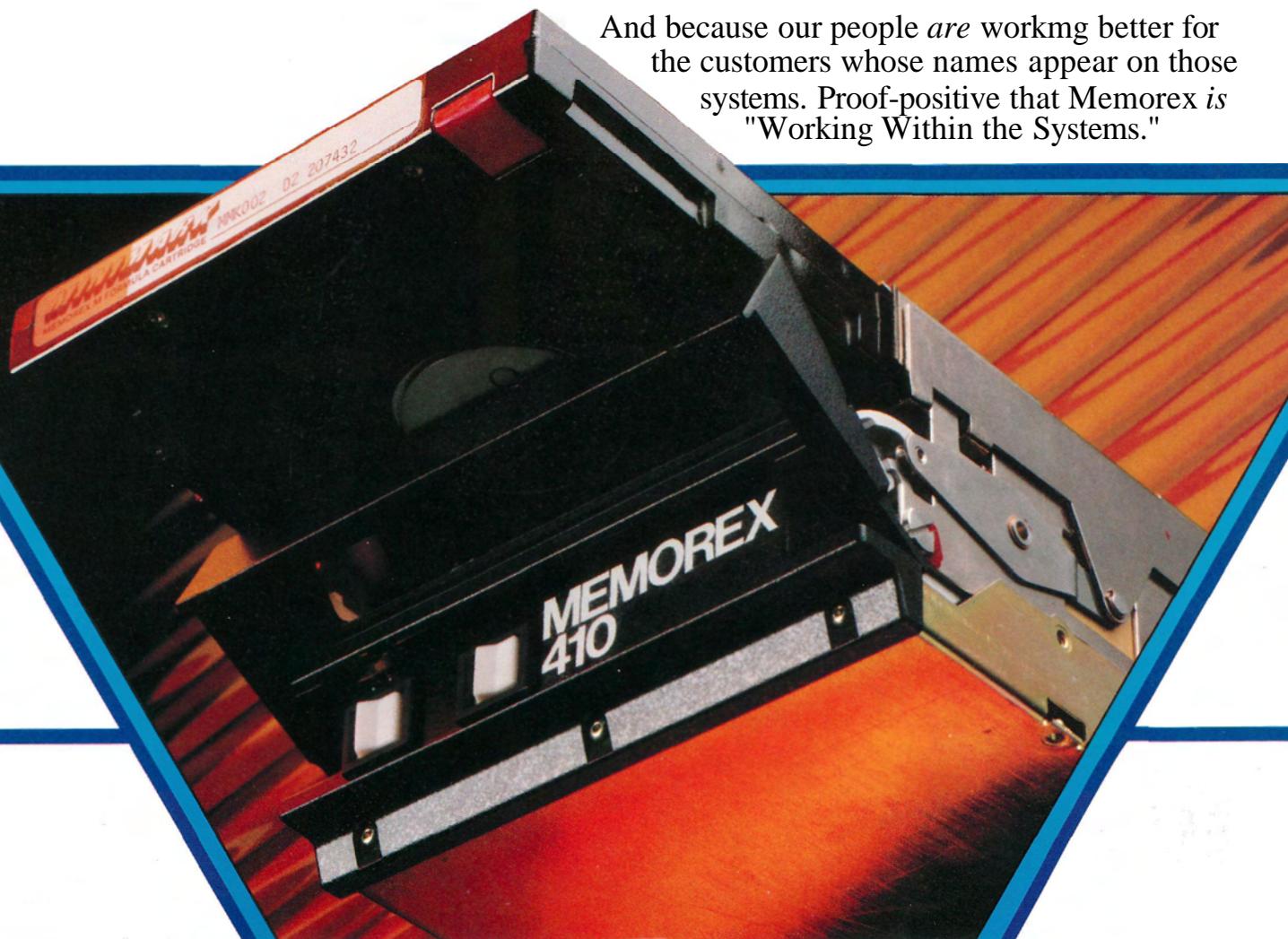
## Performance, Convenience, and Cost Efficiency Features.

The Memorex 400 Series is designed to meet the demanding standards of small system OEM's. Beyond reliability, the industry requirements of convenience and cost effectiveness rank highest. The front-loading 400 Series accepts a cartridge proposed as an ANSI standard. Fast voice coil performance gives a net average access time of 53 ms. By sharing drive motor, actuator and electronics between fixed and removable media within one package, a cost-effective back-up system is achieved. Physical and interface compatibility with standard 5.25-inch drives aids fast and economical integration into desktop systems and intelligent terminals.

## Working Within the Systems: The Tradition of Memorex OEM.

Since 1967, Memorex has steadily built a fine reputation within the OEM community—a reputation for designing and building innovative products, delivered on time and supported full time ... cost-effective products of proven performance and reliability. We have summarized that tradition in the statement, "Working Within the Systems." Implicit in those words is a Memorex understanding of "The Systems" themselves, the finished products of the OEM industry—and of the often unique needs of the companies that bring those systems together and take them to market. But key to our statement is the word "Working." Because tens of thousands of Memorex disc drives, large and small, *are* working better within a wide variety of those systems—extending and enhancing their value.

And because our people *are* working better for the customers whose names appear on those systems. Proof-positive that Memorex *is* "Working Within the Systems."



# Memorex 400 Series

## Performance/Functional Specifications

	410	415
Storage Capacity (unformatted)		
Per drive	12.8 MB	19.2 MB
Removable	6.4 MB	6.4 MB
Fixed	6.4 MB	12.8 MB
Per surface		
Fixed	3.2 MB	6.4 MB
Removable	3.2 MB	3.2 MB
Per track	10,032 B	10,032 B
Per sector	304 B	304 B
Storage Capacity (formatted)		
Per drive	10.48 MB	15.72 MB
Removable	5.24 MB	5.24 MB
Fixed	5.24 MB	10.48 MB
Per surface		
Fixed	2.62 MB	5.24 MB
Removable	2.62 MB	2.62 MB
Per track	8192 B	8192 B
Per sector	256 B	256 B
Sectors per track	32 (plus one spare)	32 (plus one spare)
Discs		
Removable	1	1
Fixed	1	1
Heads		
Read/write heads	4	4
Cylinders		
Fixed	320	640
Removable	320	320
Tracks per cylinder	2 per disc	2 per disc
Positioning Time		
Track-to-track		3 ms
Average		40 ms
Head-to-head switch		6 ms (maximum)
Settling		13 ms
Average Latency Time		8.7 ms
Rotational speed		3443 rotations/minute
Recording density		8737 bits/inch
Track density		454 tracks/inch
Data transfer rate		5 Mbits/second
Recording code		MFM (Modified Frequency Modulation)
Interface	5.25-inch Winchester standard	

## Physical Dimensions

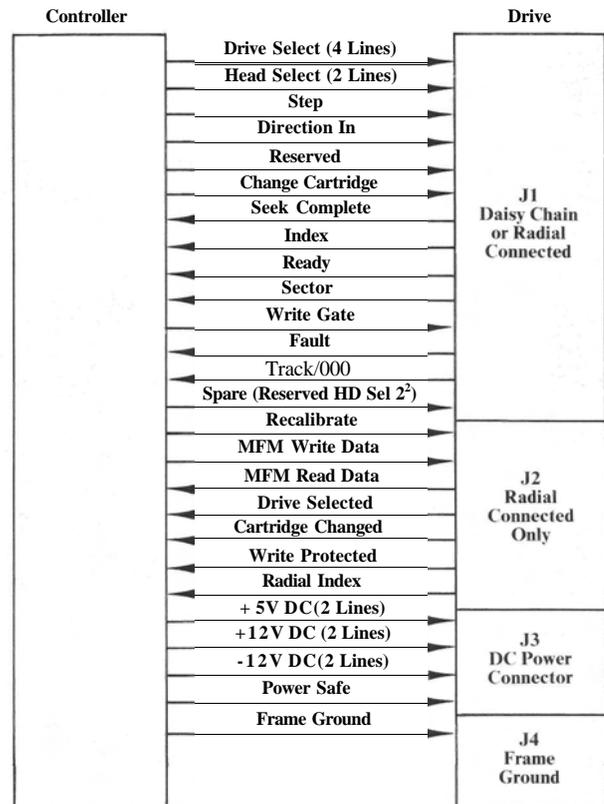
Power Requirements	
DC voltage	+ 12V ± 10% (1.2A typical, 2.1A peak) + 5V ± 5% (1.2A typical)
AC voltage	-12V ± 10% (1.2A typical, 1.5A peak) None
Package size and weight	
Height	3.25 inches (82.6 mm)
Width	5.75 inches (146.1 mm)
Depth	10.6 inches (269.2 mm)
Weight	9.5 lbs (4.3 kg)
Operating temperature	50°F to 115°F (10°C to 46°C)
Relative humidity	8 to 80% (non-condensing)
Wet bulb, max	78°F (non-condensing)
Operating Altitude	6500 feet (2000 m) max.
Dissipation	35 watts typical

## Reliability

Mean-time-between-failures (MTBF)	
Mean-time-to-repair (MTTR)	30 minutes
Component life	5 years
Error rates	
Recoverable (soft) errors	1 in 10 <sup>10</sup> read
Unrecoverable (hard) errors	1 in 10 <sup>12</sup> read
Seek errors	1 in 10 <sup>9</sup>

This information may change without notice.  
For the latest updates, contact your local Memorex representative.

## Interface



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