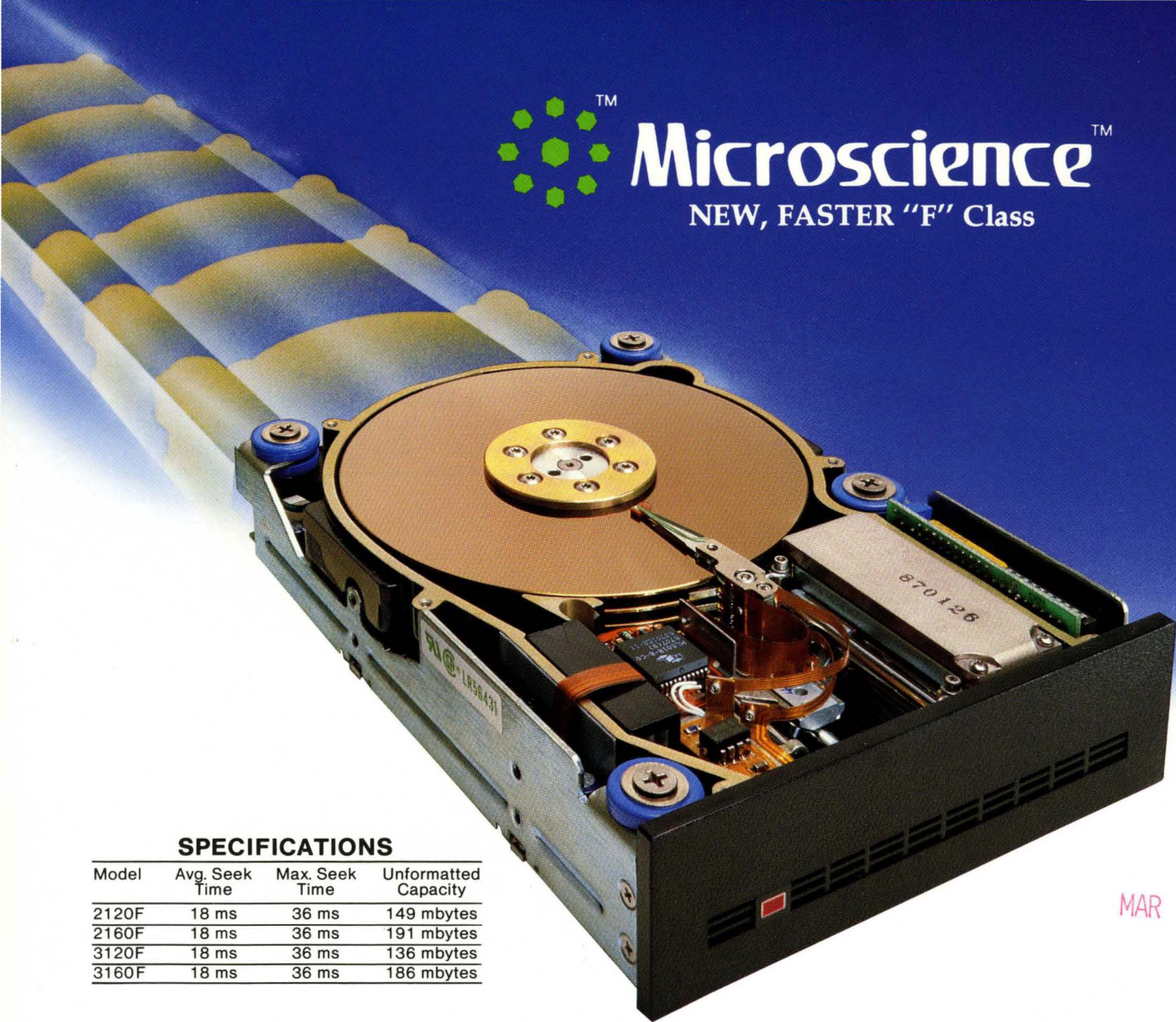


**Microscience**<sup>TM</sup>  
NEW, FASTER "F" Class



**SPECIFICATIONS**

Model	Avg. Seek Time	Max. Seek Time	Unformatted Capacity
2120F	18 ms	36 ms	149 mbytes
2160F	18 ms	36 ms	191 mbytes
3120F	18 ms	36 ms	136 mbytes
3160F	18 ms	36 ms	186 mbytes

MAR 16 1989

**HIGHER CAPACITY**

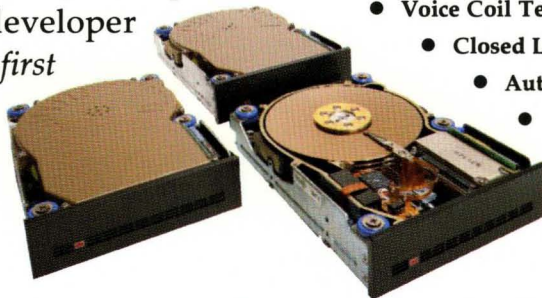
**SPEED DEMONS**

High Performance

**5.25 Inch Half Height Winchester Disk Drives**

New faster "SPEED DEMONS" with "LOAD WARRIOR" capacity. What you expect from MICROSCIENCE, developer and manufacturer of the *first* Half-Height 5.25 inch Winchester Disk Drive.

- 5ms Track to Track
- 40,000 poh MTBF
- Voice Coil Technology
  - Closed Loop Dedicated Servo
  - Automatic Carriage Lock
  - Dynamic Spindle Brake
  - SCSI, ESDI Choices





# Microscience™

## 'F' Class

### 5.25 inch Half-Height

### High Performance Winchester Disk Drive Specifications

Model No.	HH-2120 F	HH-2160 F	HH-3120 F	HH-3160 F	Model No.
<b>Capacity Unformatted</b>	149.3 MB	186.1 MB	136.8 MB	191.6 MB	<b>Capacity Unformatted</b>
<b>Capacity Formatted</b>	121.1 MB	160.1 MB	121.1 MB	169.5 MB	<b>Capacity Formatted</b>
Per sector	512 bytes	512 bytes	512 bytes	512 bytes	Per sector
Sectors per track	33*	35*	36	36	Sectors per track
<b>Data Transfer Rate</b>	10 Mb/s	10 Mb/s	10 Mb/s	10 Mb/s	<b>Data Transfer Rate</b>
<b>Average Latency</b>	8.33 ms	8.33 ms	8.33 ms	8.33 ms	<b>Average Latency</b>
<b>Seek Time (incl. settling)</b>					<b>SeekTime (incl. settling)</b>
Track to track	5 ms	5 ms	5 ms	5 ms	Track to track
Average	18 ms	18 ms	18 ms	18 ms	Average
Maximum	36 ms	36 ms	36 ms	36 ms	Maximum
<b>Functional Specifications</b>					<b>Functional Specifications</b>
Recording density	16,896 bpi	17,920 bpi	19,443 bpi	19,443	Recording density
Track density	1,250 tpi	1,250 tpi	1,250 tpi	1,250 tpi	Track density
Cylinders per surface	1,024	1,276	1,314	1,314	Cylinders per surface
Platters	4	4	3	4	Platters
Read write heads	7	7	5	7	Read write heads
Servo heads	1	1	1	1	Servo heads
Recording code	RLL (2,7)	RLL (2,7)	RLL (2,7)	RLL (2,7)	Recording code
Power dissipation	12 watts typ.	12 watts typ.	12 watts typ.	12 watts typ.	Power dissipation
<b>Interface</b>	ESDI	ESDI	SCSI	SCSI	<b>Interface</b>

\* Switch selectable, 33 or 35

### GENERAL SPECIFICATIONS:

#### Reliability Specifications

MTBF (typical usage)	40,000 poh
Preventive maintenance	none
Component life	5 years
Error rates	
Soft read errors	1 in 10 <sup>10</sup> bit read
Hard read errors	1 in 10 <sup>12</sup> bit read
Seek errors	1 in 10 <sup>6</sup> seeks

#### Environmental limits (operating)

Ambient temperature	50° to 122°F (10° to 50°C)
Relative humidity	8% to 80% non-condensing
Wet bulb, maximum	78°F non-condensing (25.5°C)
Altitude	-1,000 to 25,000 ft.
Vibration	5 to 13.77 Hz, .036 in. p-p 13.77 to 500 Hz, .35 G pk
Shock	10G, 11 ms

#### Mechanical Dimensions

Height	1.625 in.
Width	5.750 in.
Length	8.000 in.
Weight	4.4 lb.

#### Power Requirements

DC voltage	+ 12 volts ± 5% @ 0.7A typ. 1.6A starting + 5 volts ± 5% @ 0.8A typ.
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#### Environmental Limits (non-operating)

Ambient temperature	-40° to 140°F (-40° to 60°C)
Relative humidity	8% to 80% non-condensing
Wet bulb, maximum	78°F non-condensing (25.5°C)
Altitude	-1,000 to 40,000 ft.
Vibration	5 to 14.77 Hz, .047 in. p-p 14.77 to 500 Hz, 5 G pk
Shock	40 G, 11 ms

#### Safety Approvals

Underwriter Laboratories  
Canadian Standards Association  
T.U.V.



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