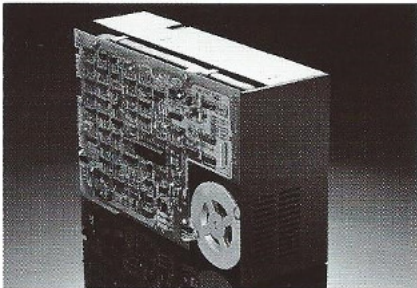


Quantum 2000 series low-cost 8-inch fixed disk drives

The Quantum 2000 series is a family of 10-, 20-, 30- and 40-megabyte 8-inch fixed disk drives in an 8-inch floppy-size package. These reliable Winchester drives provide OEMs with a low-cost upgrade of floppy disk and lower-capacity Winchester-based systems.

Q2000 drives are fully compatible with the current industry-standard 8-inch Winchester drives, yet provide two to four times the storage capacity, at a lower cost per megabyte.

The higher capacity and low cost are the result of a new track positioning system. Quantum uses a rotary moving coil actuator and temperature compensation servo instead of a conventional stepper motor actuator. This provides twice the track density and per-disk capacity, without increasing cost.



Power supply and mounting requirements are fully compatible with industry-standard 8-inch floppy drives. Drive control and data signals use the same pin assignments as compatible floppy drives, allowing daisy-chaining of fixed and floppy drives.

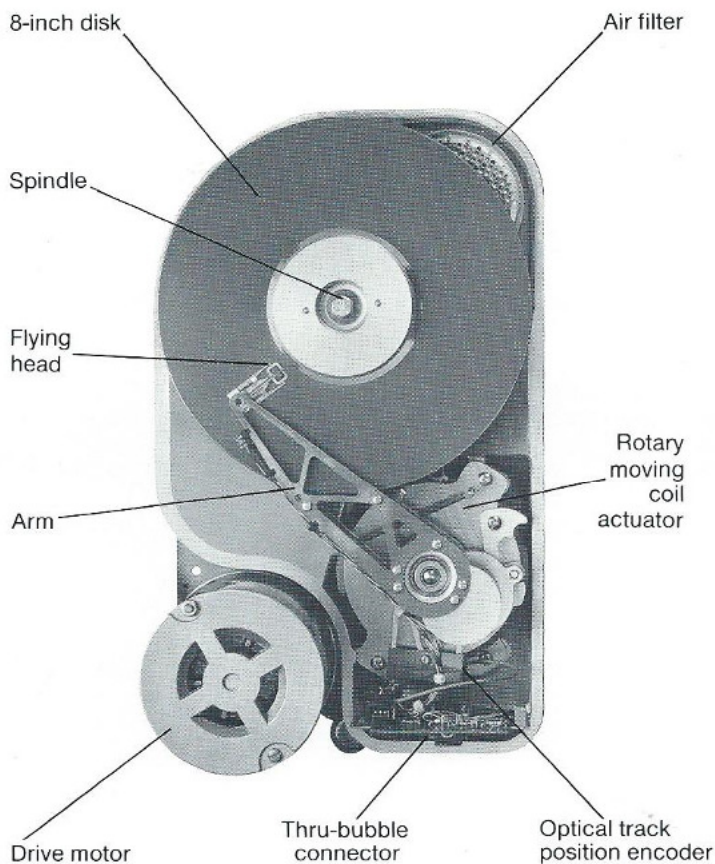


DC voltage requirements are identical to those for standard floppy drives and data cartridge streamers. The same power supply can be used with Quantum 2000 and various back-up drive options.

Key Features

- 10.7, 21.3, 32.0 and 42.7 megabyte (unformatted) storage capacities
- Full interface, format and power supply compatibility with the current industry-standard 8-inch Winchester drives
- Physical dimensions and mounting holes identical to those of standard 8-inch floppy disk drives
- Lowest-cost fixed disk drives in the 10- to 40-megabyte capacity range
- 4.34 megabits per second transfer rate
- Proven Winchester head and media technology
- Rotary moving coil actuator with temperature compensation servo
- Faster access times than stepper motor actuator drives
- Fail-safe head landing and shipping zone
- Half the heat dissipation of comparable drives
- Microprocessor control for drive logic and positioner system—includes self-diagnostics

Q2000 8-inch fixed disk drives



Recording Media

- Winchester lubricated magnetic iron oxide coating on a 200mm diameter aluminum substrate
- 5.33 megabytes of data per disk surface
- 512 tracks per disk surface

Read/Write Heads

- Winchester (IBM 3340) type flying heads
- Low mass/low load force
- Reliable contact start/stop operation
- Heads return to a "fail-safe landing zone" during power-off and shipping

Air Filtration System

- Disks and read/write heads fully sealed in clean air chamber
- Recirculating air system with absolute filter
- Absolute breather air filter permits pressure equalization with ambient air without contamination

Rotary Moving Coil Actuator

- Pure torque motor with balanced forces to maximize bearing life
- Simple construction
 - Ring magnet and two

flat-plate magnetic structure

- Single-plane moving coil
- Two-bearing structure
- Two-phase driver electronics
- Statically-balanced structure for high mechanical stability and maximum vibration resistance
- Low power consumption
- Average access time up to 20% faster than stepper motor actuators

Optical Track Position Encoder

- Track positioning resolution better than 40 microinches
- Reliable glass reticle/LED/photodiode technology

Temperature

Compensation Servo

- Direct track position feedback from disk surface
- Transparent to controller and host system
- Track location coding embedded between last inter-record gap and index pulse
- Microprocessor-controlled calibration of optical track position reference from servo feedback once each revolution

Specifications

Performance Specifications

| | Q2010 | Q2020 | Q2030 | Q2040 |
|-----------------|----------------|----------------|----------------|----------------|
| Capacity | | | | |
| Unformatted | | | | |
| per drive | 10.66 Mb | 21.33 Mb | 32.00 Mb | 42.66 Mb |
| per surface | 5.33 Mb | 5.33 Mb | 5.33 Mb | 5.33 Mb |
| per track | 10.40 Kb | 10.40 Kb | 10.40 Kb | 10.40 Kb |
| Formatted (MFM) | | | | |
| per drive | 8.40 Mb | 16.80 Mb | 25.20 Mb | 33.20 Mb |
| per surface | 4.20 Mb | 4.20 Mb | 4.20 Mb | 4.20 Mb |
| per track | 8.20 Kb | 8.20 Kb | 8.20 Kb | 8.20 Kb |
| per sector | 256 bytes | 256 bytes | 256 bytes | 256 bytes |
| sectors/track | 32 | 32 | 32 | 32 |
| Transfer rate | 4.34 Mbits/sec | 4.34 Mbits/sec | 4.34 Mbits/sec | 4.34 Mbits/sec |
| Access time* | | | | |
| Track to track | 15 ms | 15 ms | 15 ms | 15 ms |
| Average | 55 ms | 60 ms | 60 ms | 65 ms |
| Maximum | 100 ms | 100 ms | 100 ms | 105 ms |
| Avg. latency | 10 ms | 10 ms | 10 ms | 10 ms |

Functional Specifications

| | Q2010 | Q2020 | Q2030 | Q2040 |
|-------------------|----------|----------|----------|----------|
| Rotational speed | 3000 RPM | 3000 RPM | 3000 RPM | 3000 RPM |
| Recording density | 6600 bpi | 6600 bpi | 6600 bpi | 6600 bpi |
| Flux density | 6600 fci | 6600 fci | 6600 fci | 6600 fci |
| Track density | 345 tpi | 345 tpi | 345 tpi | 345 tpi |
| Cylinders | 512 | 512 | 512 | 512 |
| Tracks | 1024 | 2048 | 3072 | 4096 |
| Read/Write heads | 2 | 4 | 6 | 8 |
| Disks | 1 | 2 | 3 | 4 |
| Index | 1 | 1 | 1 | 1 |

*At nominal temperature and power

Physical Specifications

Environmental limits

- Ambient temperature = 50° to 115°F (10° to 46°C)
- Relative humidity = 8% to 80%
- Maximum wet bulb = 78° non-condensing

AC power requirements

- 50/60 Hz ± 0.5 Hz
- 100/115 VAC installations = 90–127V at 1.0A typical
- 200/230 VAC installations = 180–253V at 0.5A typical

DC voltage requirements

- +24 VDC ± 10% 1.25A typical
- +5 VDC ± 5% 1.0A typical
- 5 VDC ± 5% (-7 to -16 VDC optional) 0.2A typical

Mechanical dimensions

- Height = 4.50 in. (114.3 mm)
- Width = 8.55 in. (217.2 mm)
- Depth = 14.25 in. (362.0 mm)
- Weight = 17 lbs. (7.7 Kg)

Heat dissipation = 235 BTU/hour typical (70 watts)

Reliability Specifications

MTBF: 8,000 POH typical usage

PM: not required

MTTR: 30 minutes

Component life: 5 years

Error rates:

- Soft read errors: 1 per 10¹⁰ bits read
- Hard read errors: 1 per 10¹² bits read
- Seek errors: 1 per 10⁶ seeks

QUANTUM

Eastern Region Sales Office: (603) 893-2672
Western Region Sales Office: (408) 262-1100

1804 McCarthy Blvd., Milpitas, CA 95035