

2.0 Drive Specifications

Unless otherwise noted, all specifications are measured under ambient conditions, at 25°C, and nominal power. For convenience, the phrases *the drive* and *this drive* are used throughout this manual to indicate the following drive models:

ST3000VM002

ST2000VM003

ST1000VM002

2.1 Specification summary tables

The specifications listed in the following tables are for quick reference. For details on specification measurement or definition, see the appropriate section of this manual.

Table 1 Drive specifications summary for 3TB, 2TB and 1TB models

| Drive Specification | ST3000VM002 | ST2000VM003 | ST1000VM002 |
|--------------------------------------|---|----------------------------------|----------------------------------|
| Formatted capacity (4K/sector)* | 3000GB (3TB) | 2000GB (2TB) | 1000GB (1TB) |
| Guaranteed sectors | 5,860,533,168 | 3,907,029,168 | 1,953,525,168 |
| Heads | 6 | 4 | 2 |
| Disks | 3 | 2 | 1 |
| Bytes per sector | 4K (512 bytes per sector emulated at the interface) | | |
| Default sectors per track | 63 | 63 | 63 |
| Default read/write heads | 16 | 16 | 16 |
| Default cylinders | 16,383 | 16,383 | 16,383 |
| Recording density (max) | 1807kFCI | 1807kFCI | 1807kFCI |
| Track density (avg) | 352ktracks/in | 352ktracks/in | 352ktracks/in |
| Areal density (avg) | 625Gfc/in ² | 625Gfc/in ² | 625Gfc/in ² |
| Spindle speed | 5900 RPM | 5900 RPM | 5900 RPM |
| Internal data transfer rate (max) | 2147Mb/s | 2147Mb/s | 2147Mb/s |
| Sustained data transfer rate OD | 159MB/s | 159MB/s | 159MB/s |
| I/O data-transfer rate | 600MB/s | 600MB/s | 600MB/s |
| ATA data-transfer modes supported | PIO modes: 0 to 4 Multiword DMA modes: 0 to 2 Ultra DMA modes: 0 to 6 | | |
| Cache buffer | 64MB | 64MB | 64MB |
| Height (max) | 26.1mm / 1.028 in | 26.1mm / 1.028 in | 20mm / 0.787 in |
| Width (max) | 101.6mm / 4.0 in (± 0.010 in) | 101.6mm / 4.0 in (± 0.010 in) | 101.6mm / 4.0 in (± 0.010 in) |
| Length (max) | 147.00mm / 5.78 in | 147.00mm / 5.78 in | 147.00mm / 5.78 in |
| Weight (typical) | 626g / 1.38 lb | 535g / 1.18 lb | 415g / 0.915 lb |
| Average latency | 5.1ms | 5.1ms | 5.1ms |
| Power-on to ready (max) | <17s | <17s | <6s |
| Standby to ready (max) | <17s | <17s | <6s |
| Track-to-track seek time (typical) | <1.0ms read; <1.2ms write | <1.0ms read; <1.2ms write | <1.0ms read; <1.2ms write |
| Average seek (typical) | <8.5ms read; <9ms write | <8.5ms read; <9ms write | <8.5ms read; <9ms write |
| Startup current (typical) 12V (peak) | 2.0A | 2.0A | 2.0A |

Table 1 Drive specifications summary for 3TB, 2TB and 1TB models

| Drive Specification | ST3000VM002 | ST2000VM003 | ST1000VM002 |
|--|--|--------------------------------------|--------------------------------------|
| Voltage tolerance (including noise) | 5V: ± 5% 12V: ±10% | 5V: ± 5% 12V: ±10% | 5V: ± 5% 12V: ±10% |
| Operating temperature (drive case temperature) | 0° to 75°C | 0° to 75°C | 0° to 75°C |
| Nonoperating temperature (ambient) | -40° to 70°C | -40° to 70°C | -40° to 70°C |
| Temperature gradient (max) | 20°C per hour (operating) 30°C per hour (nonoperating) | | |
| Relative humidity | 5% to 95% (operating) 5% to 95% (nonoperating) | | |
| Relative humidity gradient (max) | 30% per hour | 30% per hour | 30% per hour |
| Wet bulb temperature (max) | 37.7°C (operating) 40.0°C (nonoperating) | | |
| Altitude, operating | -60.96m to 3048m (-200 to 10,000+ ft.) | | |
| Altitude, nonoperating (below mean sea level, max) | -60.96m to 12,192m (-200 ft. to 40,000+ ft.) | | |
| Operational Shock (max) | 80 Gs at 2ms | 80 Gs at 2ms | 80 Gs at 2ms |
| Nonoperational Shock (max) | 300 Gs at 2ms | 300 Gs at 2ms | 350 Gs at 2ms |
| Vibration, operating | 2Hz-22Hz: 0.25 Gs, Limited displacement 22Hz-350Hz: 0.50 Gs 350Hz-500Hz: 0.25 Gs | | |
| Vibration, nonoperating | 5Hz-22Hz: 3.0 Gs 22Hz-350Hz: 3.0 Gs 350Hz-500Hz: 3.0 Gs | | |
| Drive acoustics, sound power | | | |
| Idle** | 2.1 bels (typical) 2.3 bels (max) | 2.1 bels (typical) 2.3 bels (max) | 1.9 bels (typical) 2.1 bels (max) |
| Seek | 2.3 bels (typical) 2.4 bels (max) | 2.3 bels (typical) 2.4 bels (max) | 2.2 bels (typical) 2.3 bels (max) |
| Nonrecoverable read errors | 1 per 10 ¹⁴ bits read | 1 per 10 ¹⁴ bits read | 1 per 10 ¹⁴ bits read |
| Annualized Failure Rate (AFR) | 0.55% | 0.55% | 0.55% |
| Warranty | To determine the warranty for a specific drive, use a web browser to access the following web page: http://www.seagate.com/support/warranty-and-replacements/ From this page, click on “Check to see if the drive is under Warranty”. Users will be asked to provide the drive serial number, model number (or part number) and country of purchase. The system will display the warranty information for the drive. | | |
| Load/Unload cycles | 300K at 25°C, 50% rel. humidity | | |
| Supports Hotplug operation per the Serial ATA Revision 3.0 specification | Yes | Yes | Yes |

*One GB equals one billion bytes and 1TB equals one trillion bytes when referring to hard drive capacity. Accessible capacity may vary depending on operating environment and formatting.

**During periods of drive idle, some offline activity may occur according to the S.M.A.R.T. specification, which may increase acoustic and power to operational levels