

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: $\pm 5\%$ 12V: $\pm 10\%$	5V: $\pm 5\%$ 12V: $\pm 10\%$	5V: $\pm 5\%$ 12V: $\pm 10\%$
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