

Table 2: Drive specifications summary for 500 and 320GB models

Drive specification	ST3500414CS	ST3500312CS	ST3320413CS	ST3320311CS
Formatted capacity (512 bytes/sector)*	500GB		320GB	
Guaranteed sectors	976,773,168		625,142,448	
Heads	2			
Disks	1			
Bytes per sector	512			
Default sectors per track	63			
Default read/write heads	16			
Default cylinders	16,383			
Recording density (max.)	1417kb/in			
Track density (avg)	236 ktracks/in			
Areal density(avg)	341.5Gb/in ²			
Spindle speed	5900 RPM			
Internal data transfer rate (max.)	1285 Mb/s			
Sustained data transfer rate (max.)	120 MB/s			
I/O data-transfer rate (max.)	300 MB/s			
ATA data-transfer modes supported	PIO modes 0–4 Multiword DMA modes 0–2 Ultra DMA modes 0–6			
Cache buffer	16MB	8MB	16MB	8MB
Height (max.)	20.20mm / 0.795 in			
Width (max.)	101.85mm / 4.010 in			
Length (max.)	146.99mm / 5.787 in			
Weight (typical)	420g / 0.926 lb			
Average latency	5.1ms			
Power-on to ready (typical)	<6s			
Standby to ready (typical)	<6s			
Track-to-track seek time (typical)	<1.0ms (read) <1.2ms (write)			
Average seek (typical)	<14.0ms (read) <15.0ms (write)			
Startup current (typical) 12V (peak)	2.0A			
Voltage tolerance (including noise)	5V ± 5% 12V ± 10%			
Operating temperature (drive case temperature)	0° to 75°C			
Non-operating temperature (ambient)	–40° to 70°C			
Temperature gradient (max.)	20°C per hour (operating) 30°C per hour (non-operating)			
Relative humidity	5% to 90% (operating) 5% to 95% (non-operating)			
Relative humidity gradient (max.)	30% per hour			
Wet bulb temperature (max.)	37.7°C (operating) 40.0°C (non-operating)			
Altitude, operating	–60.96m to 3,048m (–200 ft to 10,000+ ft)			
Altitude, non-operating (below mean sea level, max.)	–60.96m to 12,192m (–200 ft to 40,000+ ft)			

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Operational Shock (max.)	70 Gs at 2ms			
Non-Operational Shock (max.)	350 Gs at 2ms			
Vibration, operating	5Hz to 22Hz: 0.25 Gs 22Hz to 350Hz: 0.50 Gs 350Hz to 500Hz: 0.25 Gs			
Vibration, non-operating	5Hz to 350 Hz: 3.0 Gs 350Hz to 500Hz: 3.0 Gs			
Drive acoustics, sound power				
Idle**	1.9 bels (typical) 2.1 bels (max.)			
CE Seek Profile	2.3 bels (typical) 2.4 bels (max.)			
Nonrecoverable read errors	1 per 10 ¹⁵ bits read			
Annualized Failure Rate (AFR)	0.55%			
Warranty	To determine the warranty for a specific drive, use a web browser to access the following web page: support.seagate.com/customer/warranty_validation.jsp From this page, click on the "Verify Your Warranty" link. You 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 your drive.			
Contact start-stop cycles	50,000 at 25°C, 50% rel. humidity			
Supports Hotplug operation per the Serial ATA Revision 2.6 specification	Yes			

*One Gbyte equals one billion 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.