

Data Sheet

# Constellation™

2.5-inch Tier 2/nearline drive  
with the lowest enterprise power usage

**500 GB and 160 GB • 7200 RPM • SAS 6Gb/s,  
SAS 3Gb/s, SATA 3Gb/s and SATA 1.5Gb/s**

### Key Advantages

- Industry's first 2.5-inch, 15-mm enterprise-class nearline drive for dense, space-constrained data centers
- Lowest operating power and enhanced PowerChoice™ host-selectable power options for unprecedented power savings (up to 54 percent—as low as 1.1 W) during slow or idle periods
- The industry's highest-reliability 7200-RPM drive, designed for 24x7 operation
- Best-in-class rotational vibration tolerance ensures unrivalled performance in high spindle-density applications, and multi-drive firmware maximizes system availability.
- Choose SAS for the seamless Tier 2 enterprise experience, with improved data integrity. SAS 2.0 enables faster data access (6Gb/s) and larger topologies over greater distances, increasing system scalability, data throughput and connectivity.
- Government-grade Self-Encrypting Drive security available on SAS models.



### Best-Fit Applications

- Storage-hungry business applications
- Storage area networks (SAN) and network attached storage (NAS)
- Maximum-capacity servers and blade servers
- Rich media content storage—audio, video, image
- Reference and compliance data storage
- Enterprise backup and restore—D2D, virtual tape
- Collaboration—email, messaging
- Infrastructure—Web, print, file

### Built On Seagate Unified Storage architecture

- Small form factor—15 mm z-height provides a dense, eco-friendly, robust platform for easy integration.
- SAS 2.0—6 Gb/s enables larger topologies at higher throughput and provides a higher signal strength over longer distances for improved scalability.
- Self-Encrypting Drive option for government-grade security.

### Enhanced Choices With Enterprise Capabilities

- PowerChoice host-selectable power options (1 through 4) further reduce power consumption to an unprecedented low of 1.1 W.
- With a choice of either SATA 3Gb/s or SAS 6Gb/s interfaces, utilizes perpendicular recording technology to deliver the industry's highest-capacity 2.5-inch nearline drive
- Enterprise-class firmware features and best-in-class rotational vibration tolerance maximizes system availability and performance in multi-drive systems. Seagate proprietary Workload Management technology helps systems keep drives cool.
- The best 7200-RPM reliability for 24x7 business-critical applications with an MTBF of 1.2M hours and a nonrecoverable error rate of 1 sector per 10E15—from a trusted source and backed by a 5-year limited warranty.

### Seagate Global Customer Support

- Get presales and technical support at [support.seagate.com](http://support.seagate.com).
- Visit our knowledge base for answers to common support questions.
- Find documentation for current and legacy drives.
- Utilize our online troubleshooting and diagnostic tools.

[www.seagate.com](http://www.seagate.com)

1-800-SEAGATE (1-800-732-4283)

Specifications	500 GB <sup>1</sup>		160 GB <sup>1</sup>
Model Number	ST9500430SS ST9500431SS (SED)	ST9500530NS	ST9160511NS
Interface	SAS 2.0	SATA	SATA
Interface Access Speed	SAS 6Gb/s SAS 3Gb/s SAS 1.5Gb/s	SATA 3Gb/s SATA 1.5Gb/s	SATA 3Gb/s SATA 1.5Gb/s
Self Encrypting Drive (SED) Government Grade Security	Yes	—	—
<b>Performance</b>			
Spindle Speed (RPM)	7200	7200	7200
Average Latency (ms)	4.16	4.16	4.16
Seek Time			
Average Read/Write (ms)	8.5/9.5	8.5/9.5	8.5/9.5
Track-to-Track Read/Write (ms)	0.8/1.0	0.8/1.0	0.8/1.0
Maximum Sustained Transfer Rate (MB/s)	97	95	95
Cache, Multisegmented (MB)	16	32	32
<b>Configuration/Organization</b>			
Bytes per Sector	512, 520, 524, 528	512	512
<b>Reliability/Data Integrity</b>			
Mean Time Between Failures (MTBF, hours)	1.2 million	1.2 million	1.2 million
Reliability Rating at Full 24x7 Operation (AFR)	0.73%	0.73%	0.73%
Nonrecoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15
Error Control/Correction (ECC)	10 bit	10 bit	10 bit
Interface Ports	Dual	Single	Single
Limited Warranty (years)	5	5	5
<b>Power Management</b>			
Power Supply Requirements	+12V and +5V	+12V and +5V	+12V and +5V
Typical Operating, Random Read (W)	4.0	3.5	2.8
Idle (W)	2.9	2.6	2.3
PowerChoice™ option, 1 to 4 range (W)	1.3 to 2.9	1.1 to 2.4	1.1 to 2.1
<b>Environmental</b>			
Rotational Vibration @ 1800 Hz (rad/sec <sup>2</sup> )	16	16	16
Vibration			
Operating, <400 Hz (Gs)	0.5	0.5	0.5
Nonoperating, <500 Hz (Gs)	2.4	2.4	2.4
Shock			
Operating, 2 ms (Gs)	70	70	70
Nonoperating, 1 ms and 2 ms (Gs)	400	400	400
Temperature			
Operating (°C)	5 to 55	5 to 55	5 to 55
Nonoperating (°C)	-40 to 70	-40 to 70	-40 to 70
Acoustics			
Typical Idle (bels)	2.3	2.3	1.9
Typical Operating (bels)	2.6	2.6	2.5
<b>Physical</b>			
Height (in/mm)	0.583/14.8	0.583/14.8	0.583/14.8
Width (in/mm)	2.76/70	2.76/70	2.76/70
Depth (in/mm)	3.957/100.5	3.957/100.5	3.957/100.5
Weight (lb/kg)	0.43/0.196	0.43/0.196	0.41/0.188

<sup>1</sup> One gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes when referring to hard drive capacity.

AMERICAS Seagate Technology LLC 920 Disc Drive, Scotts Valley, California 95066, United States, 831-438-6550  
 ASIA/PACIFIC Seagate Technology International Ltd. 7000 Ang Mo Kio Avenue 5, Singapore 569877, 65-6485-3888  
 EUROPE, MIDDLE EAST AND AFRICA Seagate Technology SAS 130-136, rue de Silly, 92773, Boulogne-Billancourt Cedex, France 33 1-4186 10 00