

Data Sheet

# Constellation.2™

Design Small and Deliver BIG—2.5-Inch,  
Eco-Friendly Nearline Drive

## Key Advantages

- Second generation of the first 2.5-inch, mainstream capacity, 15mm z-height, nearline enterprise drive for space-constrained data centers
- Choose 6Gb/s SAS for data integrity, scalability and fast data access, or SATA 6Gb/s for fast, economical Tier 2/nearline performance.
- The industry's highest-reliability 7200-RPM drive, designed for 24x7 operation with MTBF of 1.4M hours and AFR of 0.62%
- Enterprise-class firmware features and best-in-class rotational vibration tolerance maximize system availability and performance.
- Lowest operating power (under 6.4W) and enhanced PowerChoice™ options for additional power savings during slow or idle periods; Workload Management™ technology helps systems keep drives cool.
- Self-Encrypting Drive (SED) option (AES-256) cuts IT drive retirement costs while securely protecting data where it lives—on the drive.<sup>1</sup>
- FIPS 140-2 Validated™ drives protect *Sensitive but Unclassified* and *Protected* class data.<sup>1,2</sup>

## 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
- Enterprise backup and restore—D2D, virtual tape
- Cloud computing

<sup>1</sup> Self-Encrypting Drives (SED) and FIPS 140-2 Validated drives are not available in all models or countries. May require TCG-compliant host or controller support.

<sup>2</sup> See FIPS 140-2 Level 2 Certificate at <http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2011.htm#1635>



# Constellation.2™



## Design Small and Deliver BIG—2.5-Inch, Eco-Friendly Nearline Drive

Specifications	6Gb/s SAS		SATA 6Gb/s		
	1TB <sup>1</sup>	500GB <sup>1</sup>	1TB <sup>1</sup>	500GB <sup>1</sup>	250GB <sup>1</sup>
Standard Model Number	ST91000640SS	ST9500620SS	ST91000640NS	ST9500620NS	ST9250610NS
SED Model Number	ST91000641SS <sup>2</sup>	ST9500621SS <sup>2</sup>	ST91000641NS <sup>2</sup>	ST9500621NS <sup>2</sup>	ST9250611NS <sup>2</sup>
SED (AES-256) FIPS 140-2 Model Number	ST91000642SS <sup>2,3</sup>	ST9500622SS <sup>2,3</sup>	ST91000642NS <sup>2,3</sup>	ST9500622NS <sup>2,3</sup>	ST9250612NS <sup>2,3</sup>
<b>Features</b>					
Protection Information	Yes	Yes	—	—	—
Low Halogen	Yes	Yes	Yes	Yes	Yes
<b>Reliability/Data Integrity</b>					
Mean Time Between Failures (MTBF, hours)	1.4 million	1.4 million	1.4 million	1.4 million	1.4 million
Reliability Rating @ Full 24x7 Operation (AFR)	0.62%	0.62%	0.62%	0.62%	0.62%
Nonrecoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15
Power-On Hours per Year	8760	8760	8760	8760	8760
Bytes per Sector	512, 520, 528	512, 520, 528	512	512	512
Limited Warranty (years) <sup>4</sup>	3	3	3	3	3
<b>Performance</b>					
Spindle Speed (RPM)	7200	7200	7200	7200	7200
Cache, Multisegmented (MB)	64	64	64	64	64
Interface Access Speed (Gb/s)	6.0, 3.0, 1.5	6.0, 3.0, 1.5	6.0, 3.0, 1.5	6.0, 3.0, 1.5	6.0, 3.0, 1.5
Max. Sustained Transfer Rate (MB/s)	115	115	115	115	115
Seek Time, Average Read/Write (ms)	8.5/9.5	8.5/9.5	8.5/9.5	8.5/9.5	8.5/9.5
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Interface Ports	Dual	Dual	Single	Single	Single
RV Tolerance (rad/s <sup>2</sup> to 1800Hz)	16	16	16	16	16
<b>Power Management</b>					
Idle Power (W)	3.85	3.27	3.31	2.67	2.52
Typical Operating, Random Read (W)	6.4	5.6	5.21	4.51	4.35
Power Supply Requirements	+12V and +5V	+12V and +5V	+12V and +5V	+12V and +5V	+12V and +5V
PowerChoice™ Technology (W) <sup>5</sup>	As low as 1.87	As low as 1.87	As low as 1.19	As low as 1.19	As low as 1.19
<b>Environmental</b>					
Temperature, Operating (°C)	5 to 60	5 to 60	5 to 60	5 to 60	5 to 60
Vibration, Operating, <400Hz (Gs)	0.5	0.5	0.5	0.5	0.5
Vibration, Nonoperating, <500Hz (Gs)	3.0	3.0	3.0	3.0	3.0
Shock, Operating, 2ms (Gs)	70	70	70	70	70
Shock, Nonoperating, 1ms and 2ms (Gs)	400	400	400	400	400
Acoustics, Typical Idle (bels)	2.2	2.2	2.2	2.2	2.2
Acoustics, Typical Seek (bels)	2.8	2.8	2.8	2.8	2.8
<b>Physical</b>					
Height (in/mm) <sup>6</sup>	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00	0.591/15.00
Width (in/mm) <sup>6</sup>	2.760/70.10	2.760/70.10	2.760/70.10	2.760/70.10	2.760/70.10
Depth (in/mm) <sup>6</sup>	3.955/100.45	3.955/100.45	3.955/100.45	3.955/100.45	3.955/100.45
Weight (lb/kg)	0.441/0.200	0.403/0.183	0.441/0.200	0.403/0.183	0.395/0.179
Carton Unit Quantity	30	30	30	30	30
Cartons per Pallet	50	50	50	50	50

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

<sup>2</sup> Self-Encrypting Drives (SED) and FIPS 140-2 Validated drives are not available in all models or countries.

May require TCG-compliant host or controller support.

<sup>3</sup> See FIPS 140-2 Level 2 Certificate at <http://csrc.nist.gov/groups/STM/cmvp/documents/140-1/1401val2011.htm#1635>

<sup>4</sup> Nearline products shipped on or after December 31, 2011, have a 3-year limited warranty. Nearline products shipped before December 31, 2011, have a 5-year limited warranty.

<sup>5</sup> Based on 1TB capacity model.

<sup>6</sup> These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at [www.sffcommittee.org](http://www.sffcommittee.org). For connector-related dimensions, see SFF-8223



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

AMERICAS  
ASIA/PACIFIC  
EUROPE, MIDDLE EAST AND AFRICA

Seagate Technology LLC 10200 South De Anza Boulevard, Cupertino, California 95014, United States, 408-658-1000  
Seagate Singapore International Headquarters Pte. Ltd. 7000 Ang Mo Kio Avenue 5, Singapore 569877, 65-6485-3888  
Seagate Technology SAS 16-18, rue du Dôme, 92100 Boulogne-Billancourt, France, 33 1-4186 10 00

© 2011 Seagate Technology LLC. All rights reserved. Printed in USA. Seagate, Seagate Technology and the Wave logo are registered trademarks of Seagate Technology LLC in the United States and/or other countries. Constellation, Constellation.2, PowerChoice, the Unified Storage logo and Workload Management are either trademarks or registered trademarks of Seagate Technology LLC or one of its affiliated companies in the United States and/or other countries. The FIPS logo is a certification mark of NIST, which does not imply product endorsement by NIST, the U.S., or Canadian governments. All other trademarks or registered trademarks are the property of their respective owners. When referring to drive capacity, one gigabyte, or GB, equals one billion bytes and one terabyte, or TB, equals one trillion bytes. Your computer's operating system may use a different standard of measurement and report a lower capacity. In addition, some of the listed capacity is used for formatting and other functions, and thus will not be available for data storage. The export or re-export of hardware or software containing encryption may be regulated by the U.S. Department of Commerce, Bureau of Industry and Security (for more information, visit [www.bis.doc.gov](http://www.bis.doc.gov)), and controlled for import and use outside of the U.S. Seagate reserves the right to change, without notice, product offerings or specifications. DS1719.3-1111US, November 2011