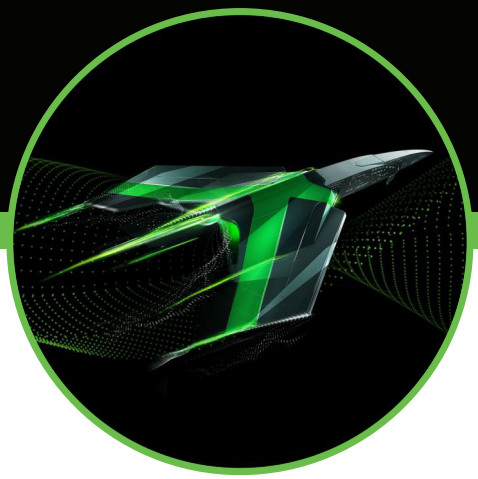
DATA SHEET

Maximise scale. Optimise TCO. Sustain the future.



Seagate's Exos hard drives deliver extraordinary storage capacity and power efficiency for AI and data-intensive applications in cutting-edge cloud and enterprise environments.



Best-Fit Applications

- High-capacity, dense RAID or erasure coded storage
- Content delivery and distribution
- Virtualized environments
- Big-data analytics
- Enterprise backup and restore — D2D, virtual tape
- Distributed file systems, including Hadoop and Ceph
- Mainstream enterprise external storage arrays
- NAS systems exceeding 16 drive bays
- Data archiving

Unmatched Capacity: Up to 32 TB of storage in an industry-standard 3.5 inch form factor delivers capacity at scale while optimising space utilisation in data centres.

Breakthrough Areal Density: Exos hard drives now boast an industry-leading 3 TB per platter, enabling massive storage capacity in the same footprint for maximised AI- driven data centre efficiency.

Time-Tested Excellence Meets Next-Gen Innovation: The latest generation of Exos blends 90% of trusted, proven components from previous generations with cutting-edge Mozaic™ technology.

Enterprise-Class Reliability: Designed for the stringent demands of cloud service providers and enterprise data centres, Exos drives deliver durable, always-on performance essential for critical enterprise applications and backed by a 5-year limited warranty and 2.5M-hr MTBF rating.

Proven helium side-sealing weld technology: For added handling, robustness and leak protection.

Sustainability: Built with more renewable energy and recycled materials than any previous Seagate product, the latest generation of Exos drives enable businesses to align with their sustainability initiatives while reducing environmental impact. Additionally, the PowerBalance™ feature optimises watts per terabyte.

Compatibility and Interoperability: Maintains the same form factor, interface, and cooling as previous generations, simplifying integration into existing infrastructure and reducing upgrade complexities.

Efficient cooling: Engineered for optimal heat dissipation, ensuring reliable performance without increasing cooling requirements in your data centre.

Seagate Secure™: Built-in reliable data protection enhances security, safeguarding your data against threats in enterprise environments.



Specifications	SATA 6 Gb/s			
Product Name	Exos	Exos	Exos	Exos
CMR Capacity	32 TB	30 TB	28 TB	24 TB
Standard Model - Seagate Instant Secure Erase (ISE) - 512e[1]	ST32000NM004K	ST30000NM004K	ST28000NM003K	ST24000NM001K
FEATURES				
CMR	Yes	Yes	Yes	Yes
Helium Sealed-Drive Design	Yes	Yes	Yes	Yes
Super Parity	Yes	Yes	Yes	Yes
Low Halogen	Yes	Yes	Yes	Yes
PowerChoice™ Idle Power Technology	Yes	Yes	Yes	Yes
PowerBalance™ Power/Performance Technology	Yes	Yes	Yes	Yes
Hot-Plug Support[2]	Yes	Yes	Yes	Yes
Cache, Multi-segmented (MB)	512	512	512	512
Organic Solderability Preservative	Yes	Yes	Yes	Yes
RSA 3072 Firmware Verification (SD&D)	Yes	Yes	Yes	Yes
RELIABILITY and DATA INTEGRITY				
Mean Time Between Failures (MTBF, hours)	2500000 hr	2500000 hr	2500000 hr	2500000 hr
Reliability Rating at Full 24×7 Operation (AFR)	0.35%	0.35%	0.35%	0.35%
Non-recoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15
Power-On Hours per Year (24x7)	8,760	8,760	8,760	8,760
512e Sector Size (Bytes per Sector)	512e	512e	512e	512e
Limited Warranty (years)	5	5	5	5
PERFORMANCE				
Spindle Speed (RPM)	7,200 RPM	7,200 RPM	7,200 RPM	7,200 RPM
Interface Access Speed (Gb/s)	6.0, 3.0	6.0, 3.0	6.0, 3.0	6.0, 3.0
Max. Sustained Transfer Rate OD (MB/s,MiB/s)	285 MB/s/272 MiB/s	275 MB/s/262 MiB/s	270 MB/s/257 MiB/s	240 MB/s/229 MiB/s
Random Read/Write 4K QD16 WCD (IOPS)	170 / 350	170 / 350	170 / 350	170 / 350
Average Latency (ms)	4.16 ms	4.16 ms	4.16 ms	4.16 ms
Interface Ports	Single	Single	Single	Single
Rotation Vibration @ 20-1500 Hz (rad/sec)	12.5	12.5	12.5	12.5
POWER CONSUMPTION				
Idle A (W) Average	6.9W	6.9W	6.9W	6.9W
Max Operating, Random Read 4K/16Q (W)	9.5W	9.5W	9.5W	9.5W
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
ENVIRONMENTAL				
Temperature, Operating (°C) - drive reported	10°C - 60°C	10°C - 60°C	10°C - 60°C	10°C - 60°C
Vibration, Non-operating: 2 to 500 Hz (Grms)	2.27	2.27	2.27	2.27
Shock, Operating 2 ms (Read/Write) (Gs)	30 Gs	30 Gs	30 Gs	30 Gs
Shock, Nonoperating 2ms (Gs)	200	200	200	200
PHYSICAL				
Height (mm/in, max)[3]	26.1 mm/1.028 in	26.1 mm/1.028 in	26.1 mm/1.028 in	26.1 mm/1.028 in
Width (mm/in, max)[3]	101.85 mm/4.010 in	101.85 mm/4.010 in	101.85 mm/4.010 in	101.85 mm/4.010 in
Depth (mm/in, max)[3]	147.0 mm/5.787 in	147.0 mm/5.787 in	147.0 mm/5.787 in	147.0 mm/5.787 in
Weight (gm/lb)	695g/1.532lb	695g/1.532lb	695g/1.532lb	695g/1.532lb
Carton Unit Quantity	20	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8	40/8

1 FastFormat models ship in 512e format state. When switching from 512e to 4Kn by executing the FastFormat routine, all data on the drive will be deleted. Note that data must be aligned to 4K sectors to see improved performance in 4Kn format

2 Supports Hotplug operation per Serial ATA Revision 3.3 specification

3 These base deck dimensions conform to the Small Form Factor Standard (SFF-8301) found at https://www.snia.org/sff. For connector-related dimensions, see SFF-8323.



Specifications	SATA 6 Gb/s			
Capacity	24 TB	20 TB	16TB	12 TB
Standard Model - Seagate Instant Secure Erase (ISE)[1]	ST24000NM002H	ST20000NM002H	ST16000NM002H	ST12000NM002H
SED Model[2]	ST24000NM001H	ST20000NM001H	ST16000NM001H	ST12000NM001H
SED-FIPS[2]	—	—	—	—
FEATURES				
Helium Sealed-Drive Design	Yes	Yes	Yes	Yes
Conventional Magnetic Recording (CMR)	Yes	Yes	Yes	Yes
Super Parity	Yes	Yes	Yes	Yes
PowerChoice™ Idle Power Technology	Yes	Yes	Yes	Yes
PowerBalance™ Power/Performance Technology	Yes	Yes	Yes	Yes
Hot-Plug Support[3]	Yes	Yes	Yes	Yes
Cache, Multi-segmented (MB)	512	512	512	512
RSA 3072 Firmware Verification (SD&D)	Yes	Yes	Yes	Yes
RELIABILITY/DATA INTEGRITY				
Mean Time Between Failures (MTBF, hours)	2500000 hrs	2500000 hrs	2500000 hrs	2500000 hrs
Reliability Rating at Full 24×7 Operation (AFR)	0.35%	0.35%	0.35%	0.35%
Non-recoverable Read Errors per Bits Read	<1 in 10E15	<1 in 10E15	<1 in 10E15	<1 in 10E15
Power-On Hours per Year (24x7)	8,760	8,760	8,760	8,760
512e Sector Size (Bytes per Sector)	512	512	512	512
4Kn Sector Size (Bytes per Sector)	4,096	4,096	4,096	4,096
Limited Warranty (years)	5	5	5	5
PERFORMANCE				
Spindle Speed (RPM)	7,200 RPM	7,200 RPM	7,200 RPM	7,200 RPM
Max. Sustained Transfer Rate OD (MB/s,MiB/s)	285/272	285/272	285/272	285/272
Random Read/Write 4K QD16 WCD (IOPS)	168/550	168/550	168/550	168/550
Interface Ports	Single	Single	Single	Single
Rotation Vibration @ 20-1500 Hz (rad/sec^2)	12.5	12.5	12.5	12.5
POWER				
Idle A (W) Average	6.3	6.3	6.3	6.3
Max Operating, Random Read/Write 4K/16Q (W)	8.9, 7.1	8.9, 7.1	8.9, 7.1	8.9, 7.1
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
ENVIRONMENTAL				
Temperature, Operating (°C) (Ambient/Drive Reported)	5 / 60	5 / 60	5 / 60	5 / 60
Vibration, Non-operating: 2 to 500 Hz (Grms)	2.27	2.27	2.27	2.27
Shock, Operating 2 ms (Read/Write) (Gs)	40 Gs	40 Gs	40 Gs	40 Gs
Shock, Nonoperating 2ms (Gs)	200	200	200	200
PHYSICAL				
Height (mm/in, max)[4]	26.1 mm/1.028 in	26.1 mm/1.028 in	26.1 mm/1.028 in	26.1 mm/1.028 in
Width (mm/in, max)[4]	101.85 mm/4.010 in	101.85 mm/4.010 in	101.85 mm/4.010 in	101.85 mm/4.010 in
Depth (mm/in, max)[4]	147 mm/5.787 in	147 mm/5.787 in	147 mm/5.787 in	147 mm/5.787 in
Weight (gm/lb)	685g/1.51 lb	685g/1.51 lb	685g/1.51 lb	685g/1.51 lb
Carton Unit Quantity	20	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8	40/8

1 FastFormat models ship in 512e format state. When switching from 512e to 4Kn by executing the FastFormat routine, all data on the drive will be deleted. Note that data must be aligned to 4K sectors to see improved performance in 4Kn format

2 Self-Encrypting Drives (SED) and FIPS 140-3 Validated drives available through franchised authorised distributors. May require TCG-compliant host or controller support.

3 Supports Hotplug operation per Serial ATA Revision 3.5 specification

4 These base deck dimensions conform to the Small Form Factor Standard (SFF-8301) found at https://www.snia.org/sff. For connector-related dimensions, see SFF-8323.



Specifications	SAS 12 Gb/s			
Capacity	24 TB	20 TB	16TB	12 TB
Standard Model - Seagate Instant Secure Erase (ISE)[1]	ST24000NM007H	ST20000NM007H	ST16000NM007H	ST12000NM007H
SED Model[2]	ST24000NM005H	ST20000NM005H	ST16000NM005H	ST12000NM005H
SED-FIPS[2]	ST24000NM006H	ST20000NM006H	ST16000NM006H	ST12000NM009H
FEATURES				
Helium Sealed-Drive Design	Yes	Yes	Yes	Yes
Conventional Magnetic Recording (CMR)	Yes	Yes	Yes	Yes
Super Parity	Yes	Yes	Yes	Yes
PowerChoice™ Idle Power Technology	Yes	Yes	Yes	Yes
PowerBalance™ Power/Performance Technology	Yes	Yes	Yes	Yes
Hot-Plug Support[3]	Yes	Yes	Yes	Yes
Cache, Multi-segmented (MB)	512	512	512	512
RSA 3072 Firmware Verification (SD&D)	Yes	Yes	Yes	Yes
RELIABILITY/DATA INTEGRITY				
Mean Time Between Failures (MTBF, hours)	2500000 hrs	2500000 hrs	2500000 hrs	2500000 hrs
Reliability Rating at Full 24×7 Operation (AFR)	0.35%	0.35%	0.35%	0.35%
Non-recoverable Read Errors per Bits Read	<1 in 10E15	<1 in 10E15	<1 in 10E15	<1 in 10E15
Power-On Hours per Year (24x7)	8,760	8,760	8,760	8,760
512e Sector Size (Bytes per Sector)	512, 520, 528	512, 520, 528	512, 520, 528	512, 520, 528
4Kn Sector Size (Bytes per Sector)	4,096, 4,160, 4,224	4,096, 4,160, 4,224	4,096, 4,160, 4,224	4,096, 4,160, 4,224
Limited Warranty (years)	5	5	5	5
PERFORMANCE				
Spindle Speed (RPM)	7,200 RPM	7,200 RPM	7,200 RPM	7,200 RPM
Max. Sustained Transfer Rate OD (MB/s,MiB/s)	285/272	285/272	285/272	285/272
Random Read/Write 4K QD16 WCD (IOPS)	168/550	168/550	168/550	168/550
Interface Ports	Dual	Dual	Dual	Dual
Rotation Vibration @ 20-1500 Hz (rad/sec^2)	12.5	12.5	12.5	12.5
POWER				
Idle A (W) Average	6.5	6.5	6.5	6.5
Max Operating, Random Read/Write 4K/16Q (W)	9.8, 8.2	9.8, 8.2	9.8, 8.2	9.8, 8.2
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
ENVIRONMENTAL				
Temperature, Operating (°C) (Ambient/Drive Reported)	5 / 60	5 / 60	5 / 60	5 / 60
Vibration, Non-operating: 2 to 500 Hz (Grms)	2.27	2.27	2.27	2.27
Shock, Operating 2 ms (Read/Write) (Gs)	40 Gs	40 Gs	40 Gs	40 Gs
Shock, Nonoperating 2ms (Gs)	200	200	200	200
PHYSICAL				
Height (mm/in, max)[4]	26.1 mm/1.028 in	26.1 mm/1.028 in	26.1 mm/1.028 in	26.1 mm/1.028 in
Width (mm/in, max)[4]	101.85 mm/4.010 in	101.85 mm/4.010 in	101.85 mm/4.010 in	101.85 mm/4.010 in
Depth (mm/in, max)[4]	147 mm/5.787 in	147 mm/5.787 in	147 mm/5.787 in	147 mm/5.787 in
Weight (gm/lb)	685g/1.51 lb	685g/1.51 lb	685g/1.51 lb	685g/1.51 lb
Carton Unit Quantity	20	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8	40/8

1 FastFormat models ship in 512e format state. When switching from 512e to 4Kn by executing the FastFormat routine, all data on the drive will be deleted. Note that data must be aligned to 4K sectors to see improved performance in 4Kn format

2 Self-Encrypting Drives (SED) and FIPS 140-3 Validated drives available through franchised authorised distributors. May require TCG-compliant host or controller support.

3 Supports Hotplug operation per Serial ATA Revision 3.5 specification

4 These base deck dimensions conform to the Small Form Factor Standard (SFF-8301) found at https://www.snia.org/sff. For connector-related dimensions, see SFF-8323.



Specifications	512e/4KN (FastFormat™) SATA				
Capacity	10 TB	8 TB	6 TB	4 TB	2 TB
Standard	ST10000NM017B	ST8000NM017B	ST6000NM019B	ST4000NM024B	ST2000NM017B
PowerBalance™ Model **	ST10000NM025B	ST8000NM025B	ST6000NM027B	—	—
Seagate Secure™ SED Model[1] **	ST10000NM019B	ST8000NM019B	ST6000NM021B	ST4000NM026B	ST2000NM019B
Seagate Secure SED-FIPS 140-3 Model[1] **	ST10000NM021B	ST8000NM021B	ST6000NM023B	ST4000NM028B	—
**not all models will be generally offered as standard configurations	—	—	—	—	—
Features					
Protection Information (T10 DIF)	—	—	—	—	—
Super Parity	Yes	Yes	Yes	Yes	Yes
Low Halogen	Yes	Yes	Yes	Yes	Yes
PowerChoice™ Technology	Yes	Yes	Yes	Yes	Yes
PowerBalance Technology	Yes	Yes	Yes	Yes	Yes
Cache, Multi-segmented (MB)	256	256	256	256	256
Advanced Write Caching (8M internal NOR flash)	Yes	Yes	Yes	Yes	Yes
Reliability/Data Integrity					
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	5	5	5	5	5
Mean Time Between Failures (MTBF, hours)	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Reliability Rating at Full 24×7 Operation (AFR)	0.44%	0.44%	0.44%	0.44%	0.44%
Non-recoverable 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	8,760	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512	512	512	512	512
Warranty, Limited (years)	5	5	5	5	5
Performance					
Spindle Speed (RPM)	7,200	7,200	7,200	7,200	7,200
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 OD	263 MB/s	255 MB/s	250 MB/s	250 MB/s	226 MB/s
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Interface Ports	Single	Single	Single	Single	Single
Rotation Vibration @ 1500 Hz (rad/s^2)	12.5	12.5	12.5	12.5	12.5
Power Consumption					
Idle Power, Average (W)	7.8	7.06	7.06	5.16	5.16
Typical Operating, Random Read (W)	11.8	11.03	11.03	9.4	9.4
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
Environmental					
Temperature, Operating (°C) Drive Reported	5 ~ 60	5 ~ 60	5 ~ 60	5 ~ 60	5 ~ 60
Shock, Operating 2 ms Read/Write (Gs)	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, (1 ms/2 ms) (Gs)	150/300	150/300	150/300	150/300	150/300
Physical					
Height (in/mm, max)[2]	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm
Width (in/mm, max)[2]	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm
Depth (in/mm, max)[2]	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm
Weight (lb/g)	720g/1.59lb	716 g/1.58 lb	716 g/1.58 lb	620 g/ 1.37 lb	620 g/ 1.37 lb
Carton Unit Quantity	20	20	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8	40/8	40/8

1 Self-Encrypting Drives (SED), Instant Secure Erase (ISE) drives, and FIPS 140-3 Validated drives are not available in all models or countries. May require TCG-compliant host or controller support.
2 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org. For connector-related dimensions, see SFF-8223.



Specifications	512e/4KN (FastFormat) SAS				
Capacity	10 TB	8 TB	6 TB	4 TB	2 TB
Standard	ST10000NM018B	ST8000NM018B	ST6000NM020B	ST4000NM025B	ST2000NM018B
PowerBalance™ Model **	—	—	—	—	—
Seagate Secure™ SED Model[1] **	ST10000NM020B	ST8000NM020B	ST6000NM022B	ST4000NM027B	ST2000NM020B
Seagate Secure SED-FIPS 140-3 Model[1] **	ST10000NM022B	ST8000NM022B	ST6000NM024B	ST4000NM029B	—
**not all models will be generally offered as standard configurations	—	—	—	—	—
Features					
Protection Information (T10 DIF)	Yes	Yes	Yes	Yes	Yes
Super Parity	Yes	Yes	Yes	Yes	Yes
Low Halogen	Yes	Yes	Yes	Yes	Yes
PowerChoice™ Technology	Yes	Yes	Yes	Yes	Yes
PowerBalance Technology	Yes	Yes	Yes	Yes	Yes
Cache, Multi-segmented (MB)	256	256	256	256	256
Advanced Write Caching (8M internal NOR flash)	Yes	Yes	Yes	Yes	Yes
Reliability/Data Integrity					
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	5	5	5	5	5
Mean Time Between Failures (MTBF, hours)	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Reliability Rating at Full 24×7 Operation (AFR)	0.44%	0.44%	0.44%	0.44%	0.44%
Non-recoverable 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	8,760	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512, 520, 528	512, 520, 528	512, 520, 528	512, 520, 528	512, 520, 528
Warranty, Limited (years)	5	5	5	5	5
Performance					
Spindle Speed (RPM)	7,200	7,200	7,200	7,200	7,200
Interface Access Speed (Gb/s)	12.0, 6.0, 3.0	12.0, 6.0, 3.0	12.0, 6.0, 3.0	12.0, 6.0, 3.0	12.0, 6.0, 3.0
Max. Sustained Transfer Rate OD	263 MB/s	255 MB/s	250 MB/s	250 MB/s	226 MB/s
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Interface Ports	Dual	Dual	Dual	Dual	Dual
Rotation Vibration @ 1500 Hz (rad/s^2)	12.5	12.5	12.5	12.5	12.5
Power Consumption					
Idle Power, Average (W)	8.14	7.24	6.59	5.9	5.9
Typical Operating, Random Read (W)	12.26	11.34	10.8	10.3	10.3
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
Environmental					
Temperature, Operating (°C) Drive Reported	5 ~ 60	5 ~ 60	5 ~ 60	5 ~ 60	5 ~ 60
Shock, Operating 2 ms Read/Write (Gs)	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, (1 ms/2 ms) (Gs)	150/300	150/300	150/300	150/300	150/300
Physical					
Height (in/mm, max)[2]	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm
Width (in/mm, max)[2]	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm
Depth (in/mm, max)[2]	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm
Weight (lb/g)	720g/1.59lb	716 g/1.58 lb	650g/1.43lb	620 g/ 1.37 lb	620 g/ 1.37 lb
Carton Unit Quantity	20	20	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8	40/8	40/8

1 Self-Encrypting Drives (SED), Instant Secure Erase (ISE) drives, and FIPS 140-3 Validated drives are not available in all models or countries. May require TCG-compliant host or controller support.
2 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org. For connector-related dimensions, see SFF-8223.



Specifications	4Kn SATA				
Capacity	10 TB	8 TB	6 TB	4 TB	2 TB
Standard	ST10000NM002B	ST8000NM002B	ST6000NM004B	ST4000NM004B	ST2000NM004B
PowerBalance™ Model **	—	—	—	—	—
Seagate Secure™ SED Model[1] **	ST10000NM006B	ST8000NM006B	ST6000NM008B	ST4000NM010B	ST2000NM010B
Seagate Secure SED-FIPS 140-3 Model[1] **	—	—	—	—	—
**not all models will be generally offered as standard configurations	—	—	—	—	—
Features					
Protection Information (T10 DIF)	—	—	—	—	—
Super Parity	Yes	Yes	Yes	Yes	Yes
Low Halogen	Yes	Yes	Yes	Yes	Yes
PowerChoice™ Technology	Yes	Yes	Yes	Yes	Yes
PowerBalance Technology	Yes	Yes	Yes	Yes	Yes
Cache, Multi-segmented (MB)	256	256	256	256	256
Advanced Write Caching (8M internal NOR flash)	Yes	Yes	Yes	Yes	Yes
Reliability/Data Integrity					
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	5	5	5	5	5
Mean Time Between Failures (MTBF, hours)	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Reliability Rating at Full 24×7 Operation (AFR)	0.44%	0.44%	0.44%	0.44%	0.44%
Non-recoverable 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	8,760	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	4,096	4,096	4,096	4,096	4,096
Warranty, Limited (years)	5	5	5	5	5
Performance					
Spindle Speed (RPM)	7,200	7,200	7,200	7,200	7,200
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 OD	263 MB/s	255 MB/s	250 MB/s	250 MB/s	226 MB/s
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Interface Ports	Single	Single	Single	Single	Single
Rotation Vibration @ 1500 Hz (rad/s^2)	12.5	12.5	12.5	12.5	12.5
Power Consumption					
Idle Power, Average (W)	7.8	7.06	6.04	5.16	5.16
Typical Operating, Random Read (W)	11.8	11.03	10.32	9.4	9.4
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
Environmental					
Temperature, Operating (°C) Drive Reported	5 ~ 60	5 ~ 60	5 ~ 60	5 ~ 60	5 ~ 60
Shock, Operating 2 ms Read/Write (Gs)	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, (1 ms/2 ms) (Gs)	150/300	150/300	150/300	150/300	150/300
Physical					
Height (in/mm, max)[2]	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm
Width (in/mm, max)[2]	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm
Depth (in/mm, max)[2]	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm
Weight (lb/g)	720g/1.59lb	716 g/1.58 lb	650g/1.43lb	620 g/ 1.37 lb	620 g/ 1.37 lb
Carton Unit Quantity	20	20	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8	40/8	40/8

1 Self-Encrypting Drives (SED), Instant Secure Erase (ISE) drives, and FIPS 140-3 Validated drives are not available in all models or countries. May require TCG-compliant host or controller support.
2 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org. For connector-related dimensions, see SFF-8223.



Specifications	4Kn SAS				
Capacity	10 TB	8 TB	6 TB	4 TB	2 TB
Standard	ST10000NM003B	ST8000NM003B	ST6000NM005B	ST4000NM005B	ST2000NM005B
PowerBalance™ Model **	—	—	—	—	—
Seagate Secure™ SED Model[1] **	ST10000NM007B	ST8000NM007B	ST6000NM009B	ST4000NM011B	ST2000NM011B
Seagate Secure SED-FIPS 140-3 Model[1] **	ST10000NM011B	ST8000NM011B	ST6000NM013B	ST4000NM017B	—
**not all models will be generally offered as standard configurations	—	—	—	—	—
Features					
Protection Information (T10 DIF)	Yes	Yes	Yes	Yes	Yes
Super Parity	Yes	Yes	Yes	Yes	Yes
Low Halogen	Yes	Yes	Yes	Yes	Yes
PowerChoice™ Technology	Yes	Yes	Yes	Yes	Yes
PowerBalance Technology	Yes	Yes	Yes	Yes	Yes
Cache, Multi-segmented (MB)	256	256	256	256	256
Advanced Write Caching (8M internal NOR flash)	Yes	Yes	Yes	Yes	Yes
Reliability/Data Integrity					
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	5	5	5	5	5
Mean Time Between Failures (MTBF, hours)	2,000,000	2,000,000	2,000,000	2,000,000	2,000,000
Reliability Rating at Full 24×7 Operation (AFR)	0.44%	0.44%	0.44%	0.44%	0.44%
Non-recoverable 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	8,760	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	4,096, 4,160, 4,224	4,096, 4,160, 4,224	4,096, 4,160, 4,224	4,096, 4,160, 4,224	4,096, 4,160, 4,224
Warranty, Limited (years)	5	5	5	5	5
Performance					
Spindle Speed (RPM)	7,200	7,200	7,200	7,200	7,200
Interface Access Speed (Gb/s)	12.0, 6.0, 3.0	12.0, 6.0, 3.0	12.0, 6.0, 3.0	12.0, 6.0, 3.0	12.0, 6.0, 3.0
Max. Sustained Transfer Rate OD	263 MB/s	255 MB/s	250 MB/s	250 MB/s	226 MB/s
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Interface Ports	Dual	Dual	Dual	Dual	Dual
Rotation Vibration @ 1500 Hz (rad/s^2)	12.5	12.5	12.5	12.5	12.5
Power Consumption					
Idle Power, Average (W)	8.14	7.24	6.59	5.9	5.9
Typical Operating, Random Read (W)	12.26	11.34	10.8	10.3	10.3
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
Environmental					
Temperature, Operating (°C) Drive Reported	5 ~ 60	5 ~ 60	5 ~ 60	5 ~ 60	5 ~ 60
Shock, Operating 2 ms Read/Write (Gs)	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, (1 ms/2 ms) (Gs)	150/300	150/300	150/300	150/300	150/300
Physical					
Height (in/mm, max)[2]	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm
Width (in/mm, max)[2]	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm
Depth (in/mm, max)[2]	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm
Weight (lb/g)	720g/1.59lb	716 g/1.58 lb	650g/1.43lb	620 g/ 1.37 lb	620 g/ 1.37 lb
Carton Unit Quantity	20	20	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8	40/8	40/8

1 Self-Encrypting Drives (SED), Instant Secure Erase (ISE) drives, and FIPS 140-3 Validated drives are not available in all models or countries. May require TCG-compliant host or controller support.
2 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org. For connector-related dimensions, see SFF-8223.



Specifications	512n SATA		
Capacity	6 TB	4 TB	2 TB
Standard	ST6000NM000B	ST4000NM000B	ST2000NM000B
PowerBalance™ Model **	—	—	—
Seagate Secure™ SED Model[1] **	—	ST4000NM006B	ST2000NM006B
Seagate Secure SED-FIPS 140-3 Model[1] **	—	ST4000NM012B	—
**not all models will be generally offered as standard configurations	—	—	—
Features			
Protection Information (T10 DIF)	—	—	—
Super Parity	Yes	Yes	Yes
Low Halogen	Yes	Yes	Yes
PowerChoice™ Technology	Yes	Yes	Yes
PowerBalance Technology	Yes	Yes	Yes
Cache, Multi-segmented (MB)	256	256	256
Advanced Write Caching (8M internal NOR flash)	Yes	Yes	Yes
Reliability/Data Integrity			
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	5	5	5
Mean Time Between Failures (MTBF, hours)	2,000,000	2,000,000	2,000,000
Reliability Rating at Full 24×7 Operation (AFR)	0.44%	0.44%	0.44%
Non-recoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15
Power-On Hours per Year	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512	512	512
Warranty, Limited (years)	5	5	5
Performance			
Spindle Speed (RPM)	7,200	7,200	7,200
Interface Access Speed (Gb/s)	6.0, 3.0, 1.5	6.0, 3.0, 1.5	6.0, 3.0, 1.5
Max. Sustained Transfer Rate OD	215 MB/s	215 MB/s	215 MB/s
Average Latency (ms)	4.16	4.16	4.16
Interface Ports	Single	Single	Single
Rotation Vibration @ 1500 Hz (rad/s^2)	12.5	12.5	12.5
Power Consumption			
Idle Power, Average (W)	7.06	6.04	5.16
Typical Operating, Random Read (W)	11.03	10.32	9.4
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
Environmental			
Temperature, Operating (°C) Drive Reported	5 ~ 60	5 ~ 60	5 ~ 60
Shock, Operating 2 ms Read/Write (Gs)	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, (1 ms/2 ms) (Gs)	150/300	150/300	150/300
Physical			
Height (in/mm, max)[2]	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm
Width (in/mm, max)[2]	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm
Depth (in/mm, max)[2]	5.787 in/147 mm	5.787 in/147.0 mm	5.787 in/147.0 mm
Weight (lb/g)	716 g/1.58 lb	650g/1.43lb	620 g/ 1.37 lb
Carton Unit Quantity	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8

1 Self-Encrypting Drives (SED), Instant Secure Erase (ISE) drives, and FIPS 140-3 Validated drives are not available in all models or countries. May require TCG-compliant host or controller support.
2 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org. For connector-related dimensions, see SFF-8223.



Specifications	512n SAS		
Capacity	6 TB	4 TB	2 TB
Standard	ST6000NM001B	ST4000NM001B	ST2000NM001B
PowerBalance™ Model **	—	—	—
Seagate Secure™ SED Model[1] **	—	ST4000NM007B	ST2000NM007B
Seagate Secure SED-FIPS 140-3 Model[1] **	—	ST4000NM013B	—
**not all models will be generally offered as standard configurations	—	—	—
Features			
Protection Information (T10 DIF)	Yes	Yes	Yes
Super Parity	Yes	Yes	Yes
Low Halogen	Yes	Yes	Yes
PowerChoice™ Technology	Yes	Yes	Yes
PowerBalance Technology	Yes	Yes	Yes
Cache, Multi-segmented (MB)	256	256	256
Advanced Write Caching (8M internal NOR flash)	Yes	Yes	Yes
Reliability/Data Integrity			
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	2.27	2.27	2.27
Mean Time Between Failures (MTBF, hours)	2,000,000	2,000,000	2,000,000
Reliability Rating at Full 24×7 Operation (AFR)	0.44%	0.44%	0.44%
Non-recoverable Read Errors per Bits Read	1 sector per 10E15	1 sector per 10E15	1 sector per 10E15
Power-On Hours per Year	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512	512	512
Warranty, Limited (years)	5	5	5
Performance			
Spindle Speed (RPM)	7,200	7,200	7,200
Interface Access Speed (Gb/s)	12.0, 6.0, 3.0	12.0, 6.0, 3.0	12.0, 6.0, 3.0
Max. Sustained Transfer Rate OD	236 MB/s	236 MB/s	236 MB/s
Average Latency (ms)	4.16	4.16	4.16
Interface Ports	Dual	Dual	Dual
Rotation Vibration @ 1500 Hz (rad/s^2)	12.5	12.5	12.5
Power Consumption			
Idle Power, Average (W)	7.24	6.59	5.9
Typical Operating, Random Read (W)	11.34	10.8	10.3
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
Environmental			
Temperature, Operating (°C) Drive Reported	5 ~ 60	5 ~ 60	5 ~ 60
Shock, Operating 2 ms Read/Write (Gs)	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, (1 ms/2 ms) (Gs)	150/300	150/300	150/300
Physical			
Height (in/mm, max)[2]	1.028 in/26.11 mm	1.028 in/26.11 mm	1.028 in/26.11 mm
Width (in/mm, max)[2]	4.010 in/101.85 mm	4.010 in/101.85 mm	4.010 in/101.85 mm
Depth (in/mm, max)[2]	5.787 in/147.0 mm	5.787 in/147.0 mm	5.787 in/147.0 mm
Weight (lb/g)	716 g/1.58 lb	620 g/ 1.37 lb	620 g/ 1.37 lb
Carton Unit Quantity	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8

1 Self-Encrypting Drives (SED), Instant Secure Erase (ISE) drives, and FIPS 140-3 Validated drives are not available in all models or countries. May require TCG-compliant host or controller support.
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Specifications	FastFormat™ 512 Emulation/4K Native			
Capacity	2.4 TB	1.8 TB	1.2 TB	600 GB
Standard Model	ST2400MM0129	ST1800MM0129	ST1200MM0129	ST600MM0099
Seagate Secure™ SED Model	—	—	ST1200MM0139	ST600MM0109
Seagate Secure FIPS 140-2/Common Criteria Model[1]	ST2400MM0149	ST1800MM0149	—	—
Performance				
Spindle Speed (RPM)	10000 RPM	10000 RPM	10000 RPM	10000 RPM
Average Latency (ms)	2.9	2.9	2.9	2.9
Sustained Transfer Rate (Outer to Inner Diameter, MB/s)	266 to 130	266 to 130	266 to 130	266 to 130
Cache, Multi-segmented (MB)	256	256	256	256
Enhanced Caching Features				
I/O Acceleration and Response Time Optimisation	Enabled	Enabled	Enabled	Enabled
Intelligent NAND Endurance Management	Yes	Yes	Yes	Yes
Enterprise Features				
Secure Download & Diagnostics (SD&D) and Instant Secure Erase Option	Yes	Yes	Yes	Yes
FastFormat (512e/4Kn AF Switching)	Yes	Yes	Yes	Yes
12 Gb/s SAS	Yes	Yes	Yes	Yes
Configuration/Reliability				
Discs/Heads	4/8	3/6	2/4	1/2
External Transfer Rate (MB/s)	1,200	1,200	1,200	1,200
Non-recoverable Read Errors per Bits Read, Max	1 per 10E16	1 per 10E16	1 per 10E16	1 per 10E16
Annualised Failure Rate (AFR)	0.44%	0.44%	0.44%	0.44%
Limited Warranty (years)	5	5	5	5
Power Management				
Typical Op (A) +5V/+12V	0.47/0.52	0.44/0.42	0.45/0.39	0.46/0.40
Typical Operating (W)	8.6	7.2	6.9	7.1
Average Idle Power (W)	4.9	4.3	3.7	3.4
Performance Efficiency Index (Idle W/GB)	0.0020	0.0024	0.0031	0.0057
Environmental				
Ambient Temperature, Operating (C°)	5°C – 55°C	5°C – 55°C	5°C – 55°C	5°C – 55°C
Ambient Temperature, Non-operating (C°)	-40°C – 70°C	-40°C – 70°C	-40°C – 70°C	-40°C – 70°C
Shock, Max. Operating: 11 ms (Gs)	40	40	40	40
Shock, Max. Nonoperating: 2 ms (Gs)	400	400	400	400
Vibration, Operating: <500 Hz (Gs)	0.5	0.5	0.5	0.5
Vibration, Non-operating: <500 Hz (Gs)	3	3	3	3
Physical				
Height (in/mm, max)[2]	0.591 in/15.00 mm	0.591 in/15.00 mm	0.591 in/15.00 mm	0.591 in/15.00 mm
Width (in/mm, max)[2]	2.750 in/69.85 mm	2.750 in/69.85 mm	2.750 in/69.85 mm	2.750 in/69.85 mm
Depth (in/mm, max)[2]	3.955 in/100.45 mm	3.955 in/100.45 mm	3.955 in/100.45 mm	3.955 in/100.45 mm
Weight (lb/g)	202g/0.445lb	206g/0.455lb	191g/0.422lb	179g/0.394lb
Carton Unit Quantity	40	40	40	40
Cartons per Pallet/Cartons per Layer	60/10	60/10	60/10	60/10

1 Not all drives may be available in all countries. Seagate Secure drives meet ISO/IEC 27040 and NIST 800-88 standards and may require use of TCG-compliant host or controller support.
2 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org.



Specifications	512 Native		
Capacity	1.2 TB	600 GB	
Standard Model	ST1200MM0009	ST600MM0009	
Seagate Secure™ SED Model	ST1200MM0039	ST600MM0039	
Seagate Secure FIPS 140-2/Common Criteria Model[1]	—	—	
Performance			
Spindle Speed (RPM)	10000 RPM	10000 RPM	
Average Latency (ms)	2.9	2.9	
Sustained Transfer Rate (Outer to Inner Diameter, MB/s)	250 to 130	250 to 130	
Cache, Multi-segmented (MB)	128	128	
Enhanced Caching Features			
I/O Acceleration and Response Time Optimisation	—	—	
Intelligent NAND Endurance Management	—	—	
Enterprise Features			
Secure Download & Diagnostics (SD&D) and Instant Secure Erase Option	Yes	Yes	
FastFormat (512e/4Kn AF Switching)	—	—	
12 Gb/s SAS	Yes	Yes	
Configuration/Reliability			
Discs/Heads	2/4	1/2	
External Transfer Rate (MB/s)	1,200	1,200	
Non-recoverable Read Errors per Bits Read, Max	1 per 10E16	1 per 10E16	
Annualised Failure Rate (AFR)	0.44%	0.44%	
Limited Warranty (years)	5	5	
Power Management			
Typical Op (A) +5V/+12V	0.45/0.39	0.46/0.40	
Typical Operating (W)	6.9	7.1	
Average Idle Power (W)	3.7	3.4	
Performance Efficiency Index (Idle W/GB)	0.0031	0.0057	
Environmental			
Ambient Temperature, Operating (C°)	5°C – 55°C	5°C – 55°C	
Ambient Temperature, Non-operating (C°)	-40°C – 70°C	-40°C – 70°C	
Shock, Max. Operating: 11 ms (Gs)	40	40	
Shock, Max. Nonoperating: 2 ms (Gs)	400	400	
Vibration, Operating: <500 Hz (Gs)	0.5	0.5	
Vibration, Non-operating: <500 Hz (Gs)	3	3	
Physical			
Height (in/mm, max)[2]	0.591 in/15.00 mm	0.591 in/15.00 mm	
Width (in/mm, max)[2]	2.760 in/70.10 mm	2.760 in/70.10 mm	
Depth (in/mm, max)[2]	3.955 in/100.45 mm	3.955 in/100.45 mm	
Weight (lb/g)	191g/0.422lb	179g/0.394lb	
Carton Unit Quantity	40	40	
Cartons per Pallet/Cartons per Layer	60/10	60/10	

1 Not all drives may be available in all countries. Seagate Secure drives meet ISO/IEC 27040 and NIST 800-88 standards and may require use of TCG-compliant host or controller support.
2 These base deck dimensions conform to the Small Form Factor Standard (SFF-8201) found at www.sffcommittee.org.

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