



2.5 HDD DATA SHEET

Amazing Versatility.  
Unmatched Dependability.



Seagate brings over 20 years of trusted performance and reliability to the Seagate® BarraCuda® 2.5-inch HDDs — now available in capacities up to 5 TB.



### Best-Fit Applications

- Laptops
- Mobile storage
- External storage systems
- All-in-one PCs
- Ultra-slim desktop PCs

## Key Advantages

**Broadest 2.5-inch hard drive portfolio** with up to 5 TB capacity and both 7 mm and 15 mm form factors suitable for a variety of compute applications.

**Thinnest and lightest 2.5-inch hard drive** with up to 2 TB storage in a 7 mm z-height, providing seamless upgrades of thin and light laptops and smaller form factor systems.

**Fast data rates of up to 140 MB/s** enables superior PC end-user experience and snappier file transfers.

2.5-inch, 15 mm z-height hard drives provide 3 TB to 5 TB in capacity, offering **the highest-capacity 2.5-inch hard drives** available for external or all-in-one storage.

**15 mm z-height enables slimmer all-in-one desktop PC drives** while helping reduce system heat generation and vibration.

**Low startup current** configurations for 3 TB to 5 TB drives enable **use in legacy low-current systems** like USB-2 external boxes, while simultaneously lowering power consumption.

5 TB drives can store more than **1.25 million songs and 600 hours of HD video.**<sup>1</sup>

<sup>1</sup> Quantitative usage examples for 5 TB capacity drive



Specifications	5 TB	4 TB	3 TB	2 TB	1 TB
Capacity	5TB	4TB	3TB	2TB	1TB
Model Numbers	ST5000LM000	ST4000LM024	ST3000LM024	ST2000LM015	ST1000LM049
Bytes per Sector (logical/physical)	512/4,096	512/4,096	512/4,096	512/4,096	512/4,096
<b>Performance</b>					
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Data Transfer Rate (MB/s)	Up to 140	Up to 140	Up to 140	Up to 140	Up to 160
Cache (MB)	128	128	128	128	128
Spindle Speed (RPM)	5,400	5,400	5,400	5,400	7,200
Recording Technology	SMR	SMR	SMR	SMR	SMR
<b>Reliability/Data Integrity</b>					
Load/Unload Cycles	600,000	600,000	600,000	600,000	600,000
Head-Rest Method	QuietStep™ Ramp Load	QuietStep Ramp Load	QuietStep Ramp Load	QuietStep Ramp Load	QuietStep Ramp Load
Non-recoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Limited Warranty (years) <sup>1</sup>	2	2	2	2	5
<b>Power Management</b>					
Startup Current (+5 V, A)	1.2	1.2	1.2	1.0	1.0
Read/Write Power, Average (W)	1.9/2.1	1.9/2.1	1.9/2.1	1.7/1.8	1.9/1.7
Idle Power, Average (W)	1.1	1.1	1.1	0.5	0.7
<b>Environmental</b>					
Temperature, Operating (°C)	0°C – 60°C	0°C – 60°C	0°C – 60°C	0°C – 60°C	0°C – 60°C
Temperature, Non-operating (°C)	-40°C – 70°C	-40°C – 70°C	-40°C – 70°C	-40°C – 70°C	-40°C – 70°C
Shock, Operating: 2 ms (Gs)	300	300	300	400	400
Shock, Non-operating: 1 ms (Gs)	650	650	650	1,000	1,000
Acoustics, Idle, Typical (bels—sound power)	2.6	2.6	2.6	2.2	2.2
Acoustics, Seek, Typical (bels—sound power)	2.7	2.7	2.7	2.4	2.4
<b>Physical</b>					
Height (mm/in)	15/0.59	15/0.59	15/0.59	7/0.276	7/0.276
Width (mm/in)	69.85 mm/2.75 in	69.85 mm/2.75 in	69.85 mm/2.75 in	69.85 mm/2.75 in	69.85 mm/2.75 in
Depth (mm/in)	100.35 mm/3.951 in	100.35 mm/3.951 in	100.35 mm/3.951 in	100.35 mm/3.951 in	100.35 mm/3.951 in
Weight (g/lb, max)	190 g/0.42 lb	190 g/0.42 lb	190 g/0.42 lb	90 g/0.198 lb	85 g/0.187 lb
Carton Unit Quantity	40	40	40	50	50
Cartons Per Pallet/Layer	60/10	60/10	60/10	60/10	60/10
<b>Special Features</b>					
Multi-Tier Caching Technology™	Yes	Yes	Yes	Yes	Yes
Halogen-free	Yes	Yes	Yes	Yes	Yes
RoHS compliance	Yes	Yes	Yes	Yes	Yes

<sup>1</sup> Extended warranty products available. Consult your distributor for details.



Specifications	1TB	500 GB	500 GB
Capacity	1TB	500GB	500GB
Model Numbers	ST1000LM048	ST500LM034	ST500LM030
Bytes per Sector (logical/physical)	512/4,096	512/4,096	512/1/4096
<b>Performance</b>			
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Data Transfer Rate (MB/s)	Up to 140	Up to 160	Up to 140
Cache (MB)	128	128	128
Spindle Speed (RPM)	5,400	7,200	5,400
Recording Technology	SMR	SMR	SMR
<b>Reliability/Data Integrity</b>			
Load/Unload Cycles	600,000	600,000	600,000
Head-Rest Method	QuietStep Ramp Load	QuietStep Ramp Load	QuietStep Ramp Load
Non-recoverable Read Errors per Bits Read, Max	1 per 10E14	1 per 10E14	1 per 10E14
Limited Warranty (years) <sup>1</sup>	2	5	2
<b>Power Management</b>			
Startup Current (+5 V, A)	1.0	1.0	1.0
Read/Write Power, Average (W)	1.6/1.7	1.9/1.7	1.6/1.7
Idle Power, Average (W)	0.45	0.7	0.45
<b>Environmental</b>			
Temperature, Operating (°C)	0°C – 60°C	0°C – 60°C	0°C – 60°C
Temperature, Non-operating (°C)	-40°C – 70°C	-40°C – 70°C	-40°C – 70°C
Shock, Operating: 2 ms (Gs)	400	400	400
Shock, Non-operating: 1 ms (Gs)	1,000	1,000	1,000
Acoustics, Idle, Typical (bels—sound power)	2	2.2	2
Acoustics, Seek, Typical (bels—sound power)	2.2	2.4	2.2
<b>Physical</b>			
Height (mm/in)	7/0.276	7/0.276	7/0.276
Width (mm/in)	69.85 mm/2.75 in	69.85 mm/2.75 in	69.85 mm/2.75 in
Depth (mm/in)	100.35 mm/3.951 in	100.35 mm/3.951 in	100.35 mm/3.951 in
Weight (g/lb, max)	90 g/0.198 lb	85 g/0.187 lb	90 g/0.198 lb
Carton Unit Quantity	50	50	50
Cartons Per Pallet/Layer	60/10	60/10	60/10
<b>Special Features</b>			
Multi-Tier Caching Technology™	Yes	Yes	Yes
Halogen-free	Yes	Yes	Yes
RoHS compliance	Yes	Yes	Yes

<sup>1</sup> Extended warranty products available. Consult your distributor for details.

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## 3.5 HDD DATA SHEET

**Tough. Ready. Scalable.**  
Purpose-built for Creative Pro, Medium-to-Large Business NAS Storage Solutions



IronWolf Pro is designed to deliver reliable and dependable performance in 24x7 intensive workload environments. It is engineered to perform in commercial and enterprise multi-bay, multi-user, multi-application NAS storage solutions.



### Best-Fit Applications

- Commercial and Enterprise NAS
- Video Production RAID Storage
- Shared Storage for Media Editing
- Workstations and Servers
- Archive and Backup



## Key Advantages

**Optimised for NAS with AgileArray™** AgileArray uses dual-plane balancing and time-limited error recovery (TLER) to deliver best-in-class RAID performance in multi-bay systems.

**Always On, Always Accessible** IronWolf Pro drives are designed for 24x7 performance, allowing users to access their data anytime, anywhere.

**All-CMR Portfolio** All IronWolf Pro drives utilise conventional magnetic recording (CMR) technology for consistent, best-in-class NAS performance.

**Up to 20 TB** Broad range of high-performance capacity options to deliver scalable and cost-efficient storage solutions.

**Built Tough** IronWolf Pro drives are rated for up to 550 TB/year workload rate, allowing commercial and enterprise NAS users to seamlessly store, share, and collaborate on large amounts of data over a network.

**Class-Leading Reliability and Dependability** IronWolf Pro drives are rated for up to 2.5M hours MTBF and include a 5-year limited warranty for hassle-free data storage and best-in-class total cost of ownership (TCO).

**Rotational Vibration (RV) sensors** Built-in RV sensors coupled with dynamic fly-height technology correct for external vibration to deliver consistently high performance and reliability in multi-bay systems.

**IronWolf Health Management (IHM)<sup>1</sup>** Actively protect your data with prevention, intervention, and recovery recommendations to ensure peak system health.

**Peace of mind with Data Recovery<sup>2</sup>** IronWolf Pro drives include three years of complimentary Rescue Data Recovery Services so users don't incur high recovery costs. In-house secure facilities with an industry-leading 95% success rate enable data recovery in the event of accidental data corruption or drive damage.

<sup>1</sup> IHM is enabled on all leading NAS systems. Please check with your NAS vendor or a Seagate® sales representative for more details.

<sup>2</sup> Rescue Data Recovery Services are not available in some countries. Contact your Seagate sales representative for further details.



Specifications	20 TB	20 TB	18 TB	18 TB
Capacity	20TB	20TB	18TB	18TB
Standard Model Number	ST20000NT001	ST20000NE000	ST18000NT001	ST18000NE000
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Features				
Drive Bays Supported	Unlimited	Up to 24-bay	Unlimited	Up to 24-bay
Recording Technology	CMR	CMR	CMR	CMR
Drive Design (Air or Helium)	Helium	Helium	Helium	Helium
Workload Rate Limit (WRL)	550	300	550	300
Rotational Vibration (RV) Sensors	Yes	Yes	Yes	Yes
Cache (MB)	256	256	256	256
Reliability/Data Integrity				
Mean Time Between Failures (MTBF, hours)	2,500,000	1,200,000	2,500,000	1,200,000
Non-recoverable Read Errors per Bits Read, Max	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15
Power-On Hours (per year)	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512E	512E	512E	512E
Rescue Data Recovery Services (years) <sup>3</sup>	3	3	3	3
Limited Warranty (years)	5	5	5	5
Performance				
Spindle Speed (RPM)	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
Max. Sustained Transfer Rate OD (MB/s)	285MB/s	285MB/s	285MB/s	260MB/s
Rotational Vibration @ 10-1500 Hz (rad/s)	12.5	12.5	12.5	12.5
Power Consumption				
Startup Current, Typical (12V, A)	2	2	2	2
Idle Power, Average (W)	5.5	5.5	5.2	5.2
Average Operating Power (W)	7.7 W	7.7 W	8 W	8 W
Standby Mode, Typical (W)	1	1	1	1
Sleep Mode, Typical (W)	1	1	1	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 Temperature (ambient, min °C)	0	0	0	0
Operating Temperature (drive reported, max °C) <sup>4</sup>	65	65	65	65
Non-operating Temperature (ambient, min °C)	-40	-40	-40	-40
Non-operating Temperature (ambient, max °C)	70	70	70	70
Environmental/Acoustics				
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	2.27	2.27	2.27	2.27
Acoustics, Idle (typical, measured in Idle 1 state) (dBA)	20	20	20	20
Acoustics, Seek (typical) (dBA)	26	26	26	26
Environmental/Shock				
Shock, Operating 2 ms (Read/Write) (Gs)	40/40 Gs	40/40 Gs	40/40 Gs	50/50 Gs
Shock, Non-operating, 1 ms and 2 ms (Gs)	200	200	200	200
Physical				
Height (mm/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
Width (mm/in, max)	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in
Depth (mm/in, max)	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in
Weight (g/lb, typical)	670 g/1.477 lb	670 g/1.477 lb	670 g/1.477 lb	670 g/1.477 lb
Carton Unit Quantity	20	20	20	20
Cartons per Pallet / Cartons per Layer	40/8	40/8	40/8	40/8

<sup>3</sup> Rescue Data Recovery Services not available in some countries.

<sup>4</sup> Seagate does not recommend operating at sustained drive temperatures above 60C. Operating at higher temperatures may affect drive health.



Specifications	16 TB	16 TB	14 TB	14 TB
Capacity	16TB	16TB	14TB	14TB
Standard Model Number	ST16000NT001	ST16000NE000	ST14000NT001	ST14000NE0008
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Features				
Drive Bays Supported	Unlimited	Up to 24-bay	Unlimited	Up to 24-bay
Recording Technology	CMR	CMR	CMR	CMR
Drive Design (Air or Helium)	Helium	Helium	Helium	Helium
Workload Rate Limit (WRL)	550	300	550	300
Rotational Vibration (RV) Sensors	Yes	Yes	Yes	Yes
Cache (MB)	256	256	256	256
Reliability/Data Integrity				
Mean Time Between Failures (MTBF, hours)	2,500,000	1,200,000	2,500,000	1,200,000
Non-recoverable Read Errors per Bits Read, Max	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15
Power-On Hours (per year)	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512E	512E	512E	512E
Rescue Data Recovery Services (years) <sup>3</sup>	3	3	3	3
Limited Warranty (years)	5	5	5	5
Performance				
Spindle Speed (RPM)	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
Max. Sustained Transfer Rate OD (MB/s)	270MB/s	255MB/s	270MB/s	255MB/s
Rotational Vibration @ 10-1500 Hz (rad/s)	12.5	12.5	12.5	12.5
Power Consumption				
Startup Current, Typical (12V, A)	2	2	2	2
Idle Power, Average (W)	5	5	5	5
Average Operating Power (W)	7.6 W	7.6 W	7.6 W	7.6 W
Standby Mode, Typical (W)	1	1	1	1
Sleep Mode, Typical (W)	1	1	1	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 Temperature (ambient, min °C)	0	0	0	0
Operating Temperature (drive reported, max °C) <sup>4</sup>	65	65	65	65
Non-operating Temperature (ambient, min °C)	-40	-40	-40	-40
Non-operating Temperature (ambient, max °C)	70	70	70	70
Environmental/Acoustics				
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	2.27	2.27	2.27	2.27
Acoustics, Idle (typical, measured in Idle 1 state) (dBA)	20	20	20	20
Acoustics, Seek (typical) (dBA)	26	26	26	26
Environmental/Shock				
Shock, Operating 2 ms (Read/Write) (Gs)	50/50 Gs	50/50 Gs	50/50 Gs	50/50 Gs
Shock, Non-operating, 1 ms and 2 ms (Gs)	200	200	200	200
Physical				
Height (mm/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
Width (mm/in, max)	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in
Depth (mm/in, max)	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in
Weight (g/lb, typical)	670 g/1.477 lb	670 g/1.477 lb	670 g/1.477 lb	670 g/1.477 lb
Carton Unit Quantity	20	20	20	20
Cartons per Pallet / Cartons per Layer	40/8	40/8	40/8	40/8

<sup>3</sup> Rescue Data Recovery Services not available in some countries.

<sup>4</sup> Seagate does not recommend operating at sustained drive temperatures above 60C. Operating at higher temperatures may affect drive health.



Specifications	12 TB	12 TB	10 TB	10 TB	10 TB
Capacity	12TB	12TB	10TB	10TB	10TB
Standard Model Number	ST12000NT001	ST12000NE0008	ST10000NT001	ST10000NE0008	ST10000NE000
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Features					
Drive Bays Supported	Unlimited	Up to 24-bay	Unlimited	Up to 24-bay	Up to 24-bay
Recording Technology	CMR	CMR	CMR	CMR	CMR
Drive Design (Air or Helium)	Helium	Helium	Air	Helium	Air
Workload Rate Limit (WRL)	550	300	550	300	300
Rotational Vibration (RV) Sensors	Yes	Yes	Yes	Yes	Yes
Cache (MB)	256	256	256	256	256
Reliability/Data Integrity					
Mean Time Between Failures (MTBF, hours)	2,500,000	1,200,000	2,000,000	1,200,000	1,200,000
Non-recoverable Read Errors per Bits Read, Max	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15
Power-On Hours (per year)	8,760	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512E	512E	512E	512E	512E
Rescue Data Recovery Services (years) <sup>3</sup>	3	3	3	3	3
Limited Warranty (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 (MB/s)	270MB/s	240MB/s	263MB/s	240MB/s	240MB/s
Rotational Vibration @ 10-1500 Hz (rad/s)	12.5	12.5	12.5	12.5	12.5
Power Consumption					
Startup Current, Typical (12V, A)	2	2	1.8	2	1.8
Idle Power, Average (W)	5	5	7.8	5	7.8
Average Operating Power (W)	7.8 W	7.8 W	10.1 W	7.8 W	10.1 W
Standby Mode, Typical (W)	1	1	1	1.17	1
Sleep Mode, Typical (W)	1	1	1	1.17	1
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 Temperature (ambient, min °C)	0	0	0	0	0
Operating Temperature (drive reported, max °C) <sup>4</sup>	65	65	65	65	65
Non-operating Temperature (ambient, min °C)	-40	-40	-40	-40	-40
Non-operating Temperature (ambient, max °C)	70	70	70	70	70
Environmental/Acoustics					
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	2.27	2.27	2.27	2.27	2.27
Acoustics, Idle (typical, measured in Idle 1 state) (dBA)	20	20	28	20	28
Acoustics, Seek (typical) (dBA)	26	26	30	26	30
Environmental/Shock					
Shock, Operating 2 ms (Read/Write) (Gs)	50/50 Gs	50/50 Gs	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, 1 ms and 2 ms (Gs)	200	200	250	250	300
Physical					
Height (mm/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/1.028 in
Width (mm/in, max)	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in
Depth (mm/in, max)	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in
Weight (g/lb, typical)	670 g/1.477 lb	670 g/1.477 lb	720 g/1.59 lb	690 g/1.521 lb	720 g/1.59 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

<sup>3</sup> Rescue Data Recovery Services not available in some countries.

<sup>4</sup> Seagate does not recommend operating at sustained drive temperatures above 60C. Operating at higher temperatures may affect drive health.



Specifications	8 TB	8 TB	6 TB	6 TB
Capacity	8TB	8TB	6TB	6TB
Standard Model Number	ST8000NT001	ST8000NE001	ST6000NT001	ST6000NE000
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Features				
Drive Bays Supported	Unlimited	Up to 24-bay	Unlimited	Up to 24-bay
Recording Technology	CMR	CMR	CMR	CMR
Drive Design (Air or Helium)	Air	Air	Air	Air
Workload Rate Limit (WRL)	550	300	550	300
Rotational Vibration (RV) Sensors	Yes	Yes	Yes	Yes
Cache (MB)	256	256	256	256
Reliability/Data Integrity				
Mean Time Between Failures (MTBF, hours)	2,000,000	1,200,000	2,000,000	1,200,000
Non-recoverable Read Errors per Bits Read, Max	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15
Power-On Hours (per year)	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512E	512E	512E	512E
Rescue Data Recovery Services (years) <sup>3</sup>	3	3	3	3
Limited Warranty (years)	5	5	5	5
Performance				
Spindle Speed (RPM)	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
Max. Sustained Transfer Rate OD (MB/s)	255MB/s	240MB/s	250MB/s	220MB/s
Rotational Vibration @ 10-1500 Hz (rad/s)	12.5	12.5	12.5	12.5
Power Consumption				
Startup Current, Typical (12V, A)	2	2	2	2
Idle Power, Average (W)	7.8	7.8	7.1	7.1
Average Operating Power (W)	10.1 W	10.1 W	9.3 W	9.3 W
Standby Mode, Typical (W)	1	1	1	1
Sleep Mode, Typical (W)	1	1	1	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 Temperature (ambient, min °C)	0	0	0	0
Operating Temperature (drive reported, max °C) <sup>4</sup>	65	65	65	65
Non-operating Temperature (ambient, min °C)	-40	-40	-40	-40
Non-operating Temperature (ambient, max °C)	70	70	70	70
Environmental/Acoustics				
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	2.27	2.27	2.27	2.27
Acoustics, Idle (typical, measured in Idle 1 state) (dBA)	28	28	28	28
Acoustics, Seek (typical) (dBA)	30	30	30	30
Environmental/Shock				
Shock, Operating 2 ms (Read/Write) (Gs)	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, 1 ms and 2 ms (Gs)	300	300	300	300
Physical				
Height (mm/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
Width (mm/in, max)	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in
Depth (mm/in, max)	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in
Weight (g/lb, typical)	720 g/1.59 lb	720 g/1.59 lb	716 g/1.58 lb	716 g/1.58 lb
Carton Unit Quantity	20	20	20	20
Cartons per Pallet / Cartons per Layer	40/8	40/8	40/8	40/8

<sup>3</sup> Rescue Data Recovery Services not available in some countries.

<sup>4</sup> Seagate does not recommend operating at sustained drive temperatures above 60C. Operating at higher temperatures may affect drive health.





Specifications	4 TB	4 TB	2 TB	2 TB
Capacity	4TB	4TB	2TB	2TB
Standard Model Number	ST4000NT001	ST4000NE001	ST2000NT001	ST2000NE001
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
Features				
Drive Bays Supported	Unlimited	Up to 24-bay	Unlimited	Up to 24-bay
Recording Technology	CMR	CMR	CMR	CMR
Drive Design (Air or Helium)	Air	Air	Air	Air
Workload Rate Limit (WRL)	550	300	550	300
Rotational Vibration (RV) Sensors	Yes	Yes	Yes	Yes
Cache (MB)	256	256	256	256
Reliability/Data Integrity				
Mean Time Between Failures (MTBF, hours)	2,000,000	1,200,000	2,000,000	1,200,000
Non-recoverable Read Errors per Bits Read, Max	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15
Power-On Hours (per year)	8,760	8,760	8,760	8,760
Sector Size (Bytes per Logical Sector)	512E	512E	512E	512E
Rescue Data Recovery Services (years) <sup>3</sup>	3	3	3	3
Limited Warranty (years)	5	5	5	5
Performance				
Spindle Speed (RPM)	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
Max. Sustained Transfer Rate OD (MB/s)	250MB/s	220MB/s	226MB/s	220MB/s
Rotational Vibration @ 10-1500 Hz (rad/s)	12.5	12.5	12.5	12.5
Power Consumption				
Startup Current, Typical (12V, A)	2	2	2	2
Idle Power, Average (W)	5.5	5.5	3.8	3.8
Average Operating Power (W)	8.7 W	8.7 W	6.7 W	6.7 W
Standby Mode, Typical (W)	1	1	1	1
Sleep Mode, Typical (W)	1	1	1	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 Temperature (ambient, min °C)	0	0	0	0
Operating Temperature (drive reported, max °C) <sup>4</sup>	65	65	65	65
Non-operating Temperature (ambient, min °C)	-40	-40	-40	-40
Non-operating Temperature (ambient, max °C)	70	70	70	70
Environmental/Acoustics				
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	2.27	2.27	2.27	2.27
Acoustics, Idle (typical, measured in Idle 1 state) (dBA)	28	28	28	28
Acoustics, Seek (typical) (dBA)	30	30	30	30
Environmental/Shock				
Shock, Operating 2 ms (Read/Write) (Gs)	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, 1 ms and 2 ms (Gs)	300	300	300	300
Physical				
Height (mm/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
Width (mm/in, max)	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in
Depth (mm/in, max)	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in
Weight (g/lb, typical)	650 g/1.431 lb	650 g/1.431 lb	620 g/1.37 lb	620 g/1.37 lb
Carton Unit Quantity	20	20	20	20
Cartons per Pallet / Cartons per Layer	40/8	40/8	40/8	40/8

<sup>3</sup> Rescue Data Recovery Services not available in some countries.

<sup>4</sup> Seagate does not recommend operating at sustained drive temperatures above 60C. Operating at higher temperatures may affect drive health.

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3.5 HARD DRIVE DATA SHEET

Smart. Safe. Secure.  
Video Optimised and Edge Ready



Seagate® SkyHawk™ AI 20 TB is a video-optimised drive designed for NVRs with artificial intelligence (AI) for edge applications.



#### Best-Fit Applications

- Network video recorders (NVR)
- AI-enabled NVR systems



SKYHAWK  
HEALTH



## Key Advantages

**ImagePerfect™ AI firmware** delivers zero dropped frames while supporting heavier workloads.

**Versatile capabilities** intelligently adapt to the scale of your AI environment, supporting up to 64 HD video streams and 32 AI streams.

**Rescue Data Recovery Services.<sup>2</sup>** SkyHawk AI comes with extra peace of mind for any mechanical, accidental, or natural disaster. With a 95% success rate of in-house recovery, Seagate has your back with a 3-year included Rescue Services plan.

**SkyHawk Health Management** actively helps protect your video storage by focusing on prevention, intervention and recovery options.<sup>1</sup> Included RAID RapidRebuild™ provides 3× faster volume rebuilds.

**Class-Leading Reliability and Dependability** SkyHawk AI drives are rated for 2M hours MTBF and a 550 TB/year workload rate for more than 3x that of standard surveillance hard drives. Backed by a 5-year limited warranty.

**Powerful processing** to welcome workload challenges — SkyHawk AI supports video analysis and recording simultaneously with GPU analytics workloads.

**Enjoy consistent performance** with built-in rotational vibration sensors providing reliable storage for NVR with little lag or downtime.

**Multi-bay support** helps you meet your growing storage demands with up to 16+ bays.

<sup>1</sup> Contact your Seagate sales representative for further information.



Specifications	20 TB	18 TB	16 TB	12 TB	10 TB
Capacity	20TB	18TB	16TB	12TB	10TB
Standard Model Numbers	ST20000VE002	ST18000VE002	ST16000VE002	ST12000VE001	ST10000VE0008
Interface	SATA 6 Gb/s	SATA 6 Gb/s	SATA 6 Gb/s	SATA 6 Gb/s	SATA 6 Gb/s
Recording Technology	CMR	CMR	CMR	CMR	CMR
Drive Design	Helium	Helium	Helium	Helium	Helium
Features and Performance					
Drive Bays Supported	16+	16+	16+	16+	16+
AI Channels	32	32	32	32	32
AI Real Time Capture Events/Sec <sup>1,2</sup>	Up to 120	Up to 120	Up to 120	Up to 120	Up to 120
AI Real Time Compare Events/Sec <sup>1,2</sup>	Up to 96	Up to 96	Up to 96	Up to 96	Up to 96
HD Cameras Supported <sup>3</sup>	Up to 64	Up to 64	Up to 64	Up to 64	Up to 64
RV Sensors	Yes	Yes	Yes	Yes	Yes
Max Data Transfer Rate (MB/s)	Up to 260	Up to 260	Up to 255	Up to 255	Up to 255
Cache (MB)	256	256	256	256	256
Reliability/Data Integrity					
Tarnish Resistant	Yes	Yes	Yes	Yes	Yes
Load/Unload Cycles	600,000	600,000	600,000	600,000	600,000
Non-recoverable Read Errors Rate, Max	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15
Power-On Hours per year	8,760	8,760	8,760	8,760	8,760
Workload Rate Limit (WRL) <sup>4</sup>	550	550	550	550	550
Mean Time Between Failures (MTBF) (hours)	2,000,000 hr	2,000,000 hr	2,000,000 hr	2,000,000 hr	2,000,000 hr
Warranty, Limited (years) <sup>5</sup>	5	5	5	5	5
Rescue Data Recovery Services (years) <sup>6</sup>	3	3	3	3	3
Power Management					
Startup Current, Typical (12V, A)	2	2	2	2	1.8
Average Read/Write Power * (W) <sup>7</sup>	7.72	7.7	8	8	6.9
Idling Average (W)	3.54 W	3.5 W	5.3 W	5.3 W	4.9 W
Standby Mode/Sleep Mode, Typical (W)	1.01/1.01	1/1	1.3/1.3	1.3/1.3	1.2/1.2
Voltage Tolerance (5 V)	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance (12 V)	±10%	±10%	±10%	±10%	±10%
Environmental/Temperature					
Operating (Ambient, min °C)	0	0	0	0	0
Operating (drive reported, max °C) <sup>8</sup>	65	65	65	65	65
Non-operating (ambient, min °C)	-40	-40	-40	-40	-40
Physical					
Height (mm/in, max)	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/1.028 in
Width (mm/in, max)	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in	101.85 mm/4.01 in
Depth (mm/in, max)	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in	146.99 mm/5.787 in
Weight (g/lb, typical)	680 g/1.499 lb	680 g/1.499 lb	670 g/1.477 lb	670 g/1.477 lb	690 g/1.521 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

<sup>1</sup> Events can be human, vehicle, or object capture.

<sup>2</sup> Tested and verified using embedded AI NVR – 64-ch HD recording, 16-ch PB. Average picture size ~250 KB

<sup>3</sup> 1080P, H.265, 25 fps

<sup>4</sup> SkyHawk AI surveillance drives are designed for always-on workloads of 550 TB/year. For higher transaction workloads, see Seagate's enterprise-class drive offerings.

<sup>5</sup> 5-year limited warranty applies to product shipped after July 3, 2021. Check with your reseller for more information.

<sup>6</sup> From May 1, 2020, 3-year Rescue Data Recovery Services plan may be offered in addition to standard warranty. This is offered for selected regions only. Check with reseller on availability.

<sup>7</sup> Based on IDEMA three stream workload

<sup>8</sup> Seagate does not recommend operating at sustained extreme temperatures. Operation at high temperatures will shorten product life.



Specifications	10 TB	8 TB
Capacity	10TB	8TB
Standard Model Numbers	ST10000VE001	ST8000VE001
Interface	SATA 6 Gb/s	SATA 6 Gb/s
Recording Technology	CMR	CMR
Drive Design	Air	Air
<b>Features and Performance</b>		
Drive Bays Supported	16+	16+
AI Channels	32	32
AI Real Time Capture Events/Sec <sup>1,2</sup>	Up to 120	Up to 120
AI Real Time Compare Events/Sec <sup>1,2</sup>	Up to 96	Up to 96
HD Cameras Supported <sup>3</sup>	Up to 64	Up to 64
RV Sensors	Yes	Yes
Max Data Transfer Rate (MB/s)	Up to 255	Up to 255
Cache (MB)	256	256
<b>Reliability/Data Integrity</b>		
Tarnish Resistant	Yes	Yes
Load/Unload Cycles	600,000	600,000
Non-recoverable Read Errors Rate, Max	1 per 10E15	1 per 10E15
Power-On Hours per year	8,760	8,760
Workload Rate Limit (WRL) <sup>4</sup>	550	550
Mean Time Between Failures (MTBF) (hours)	2,000,000 hr	2,000,000 hr
Warranty, Limited (years) <sup>5</sup>	5	5
Rescue Data Recovery Services (years) <sup>6</sup>	3	3
<b>Power Management</b>		
Startup Current, Typical (12V, A)	2	2
Average Read/Write Power * (W) <sup>7</sup>	9	8.8
Idling Average (W)	7.4 W	7.4 W
Standby Mode/Sleep Mode, Typical (W)	1/1	1/1
Voltage Tolerance (5 V)	±5%	±5%
Voltage Tolerance (12 V)	±10%	±10%
<b>Environmental/Temperature</b>		
Operating (Ambient, min °C)	0	0
Operating (drive reported, max °C) <sup>8</sup>	65	65
Non-operating (ambient, min °C)	-40	-40
<b>Physical</b>		
Height (mm/in, max)	26.11 mm/1.028 in	26.11 mm/1.028 in
Width (mm/in, max)	101.85 mm/4.01 in	101.85 mm/4.01 in
Depth (mm/in, max)	146.99 mm/5.787 in	146.99 mm/5.787 in
Weight (g/lb, typical)	720 g/1.59 lb	720 g/1.59 lb
Carton Unit Quantity	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8

<sup>1</sup> Events can be human, vehicle, or object capture.

<sup>2</sup> Tested and verified using embedded AI NVR – 64-ch HD recording, 16-ch PB. Average picture size ~250 KB

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