

3.5 HDD DATA SHEET

## Tough. Ready. Scalable Purpose-built for Connected-Home, SOHO and Small-to-Medium Business NAS Environments



IronWolf™ is designed for consumer and commercial NAS. Delivering Tough, Ready and Scalable 24x7 performance in multi-bay, networked environments.



### Best-Fit Applications

- Consumer and Commercial NAS
- Desktops and Workstations
- Multimedia Servers



## Key Advantages

**Optimised for NAS with AgileArray™** AgileArray enables Dual-Plane Balancing and Time-Limited Error Recovery to deliver best-in-class RAID performance in multi-bay systems.

**Always On, Always Accessible** IronWolf drives are designed for 24x7 usage, allowing users to access their data any time, anywhere.

**All-CMR Portfolio** All IronWolf drives utilize Conventional Magnetic Recording (CMR) technology for consistent, best-in-class NAS performance.

**Up to 12 TB** Broad range of capacity options to deliver scalable and cost-efficient storage solutions.

**Built Tough** IronWolf drives are rated for 180 TB/year workload, allowing consumer and commercial NAS users to seamlessly store and work with large amounts of networked data.

**Superior Reliability and Dependability** IronWolf drives are rated for 1M hours MTBF and include a 3-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 for vibration tolerance and consistent performance in multi-bay systems.<sup>1</sup>

**IronWolf Health Management (IHM)** Actively protect your NAS data with Prevention, Intervention, and Recovery recommendations to ensure peak system health.<sup>2</sup>

**Peace of mind with Data Recovery** IronWolf drives include 3 years of complimentary Rescue Data Recovery Services - in-house secure facilities, with an industry-leading recovery rate of 95% - so you do not have to incur high recovery costs in the event of accidental data corruption or drive damage.<sup>3</sup>

<sup>1</sup> Included on models >=4 TB.

<sup>2</sup> IHM is enabled on leading NAS systems. Please check with your NAS vendor or a Seagate sales representative for more details.

<sup>3</sup> Rescue services are not available in all countries. Please check with your Seagate sales representative for more details.



Specifications	12 TB	10 TB	10 TB	8 TB	6 TB
Capacity	12TB	10TB	10TB	8TB	6TB
Standard Model Number	ST12000VN0008	ST10000VN0008	ST10000VN000	ST8000VN004	ST6000VN001
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
<b>Features and Performance</b>					
Drive Bays Supported	1 – 8 Bays	1 – 8 Bays	1 – 8 Bays	1 – 8 Bays	1 – 8 Bays
Recording Technology	CMR	CMR	CMR	CMR	CMR
Drive Design (Air or Helium)	Helium	Helium	Air	Air	Air
Workload Rate Limit (WRL)	180	180	180	180	180
Rotational Vibration (RV) Sensor	Yes	Yes	Yes	Yes	Yes
Dual-Plane Balance	Yes	Yes	Yes	Yes	Yes
Error Recovery Control	Yes	Yes	Yes	Yes	Yes
Max. Sustained Transfer Rate OD (MB/s)	210MB/s	210MB/s	210MB/s	210MB/s	190MB/s
Spindle Speed (RPM)	7,200	7,200	7,200	7,200	5,400
Cache (MB)	256	256	256	256	256
<b>Reliability</b>					
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 10E14
Power-on Hours	8,760	8,760	8,760	8,760	8,760
Mean Time Between Failures (MTBF, hours)	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Rescue Data Recovery Services (years) <sup>4</sup>	3	3	3	3	3
Warranty, Limited (years)	3	3	3	3	3
<b>Power Management</b>					
Startup Current, Typical (12V, A)	1.8	1.8	1.8	1.8	1.8
Average Operating Power	7.8	7.8	10.1	10.1	5.3
Idle Power Average (W)	5 W	5 W	7.8 W	7.8 W	3.4 W
Standby Mode/Sleep Mode, Typical (W)	1.17/1.17	1.17/1.17	1/1	1/1	0.25/0.25
Voltage Tolerance, Inc. Noise (5 V)	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Inc. Noise (12 V)	±10%	±10%	±10%	±10%	±10%
<b>Environmental/Temperature</b>					
Operating Temperature (ambient, min °C)	0	0	0	0	0
Operating Temperature (drive reported, max °C) <sup>5</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
<b>Environmental/Shock</b>					
Shock, Operating/Non-operating: 2 ms (max)	70 Gs/250 Gs	70 Gs/250 Gs	70 Gs/300 Gs	70 Gs/300 Gs	70 Gs/250 Gs
<b>Environmental/Acoustics</b>					
Acoustics, Idle (typical, measured in Idle 1 state) (dBA)	18	18	28	28	26
Acoustics, Seek (typical) (dBA)	28	28	32	32	27
<b>Physical</b>					
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)	690 g/1.521 lb	690 g/1.521 lb	720 g/1.59 lb	720 g/1.59 lb	610 g/1.345 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>4</sup> Rescue services are not available in all countries. Please check with your Seagate sales representative for more details.

<sup>5</sup> Seagate does not recommend operating at sustained drive temperatures above 60°C. Operating at higher temperatures may affect drive health.



Specifications	4 TB	3 TB	2 TB	1 TB
Capacity	4TB	3TB	2TB	1TB
Standard Model Number	ST4000VN008	ST3000VN007	ST2000VN004	ST1000VN002
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
<b>Features and Performance</b>				
Drive Bays Supported	1 – 8 Bays	1 – 8 Bays	1 – 8 Bays	1 – 8 Bays
Recording Technology	CMR	CMR	CMR	CMR
Drive Design (Air or Helium)	Air	Air	Air	Air
Workload Rate Limit (WRL)	180	180	180	180
Rotational Vibration (RV) Sensor	Yes	No	No	No
Dual-Plane Balance	Yes	Yes	Yes	Yes
Error Recovery Control	Yes	Yes	Yes	Yes
Max. Sustained Transfer Rate OD (MB/s)	180MB/s	180MB/s	180MB/s	180MB/s
Spindle Speed (RPM)	5,900	5,900	5,900	5,900
Cache (MB)	64	64	64	64
<b>Reliability</b>				
Load/Unload Cycles	600,000	600,000	600,000	—
Non-recoverable Read Errors Rate, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Power-on Hours	8,760	8,760	8,760	8,760
Mean Time Between Failures (MTBF, hours)	1,000,000	1,000,000	1,000,000	1,000,000
Rescue Data Recovery Services (years) <sup>4</sup>	3	3	3	3
Warranty, Limited (years)	3	3	3	3
<b>Power Management</b>				
Startup Current, Typical (12V, A)	1.8	1.8	1.8	1.2
Average Operating Power	4.8	4.8	4.3	3.76
Idle Power Average (W)	3.95 W	4.8 W	3.56 W	2.5 W
Standby Mode/Sleep Mode, Typical (W)	0.5/0.5	0.5/0.5	0.5/0.5	0.5/0.5
Voltage Tolerance, Inc. Noise (5 V)	±5%	±5%	±5%	±5%
Voltage Tolerance, Inc. Noise (12 V)	±10%	±10%	±10%	±10%
<b>Environmental/Temperature</b>				
Operating Temperature (ambient, min °C)	0	0	0	0
Operating Temperature (drive reported, max °C) <sup>5</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
<b>Environmental/Shock</b>				
Shock, Operating/Non-operating: 2 ms (max)	80 Gs/300 Gs	80 Gs/300 Gs	80 Gs/300 Gs	80 Gs/300 Gs
<b>Environmental/Acoustics</b>				
Acoustics, Idle (typical, measured in Idle 1 state) (dBA)	23	23	19	21
Acoustics, Seek (typical) (dBA)	25	25	21	23
<b>Physical</b>				
Height (mm/in)	26.11 mm/1.028 in	26.11 mm/1.028 in	26.11 mm/1.028 in	20.2 mm/0.795 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)	610 g/1.345 lb	610 g/1.345 lb	535 g/1.18 lb	415 g/0.915 lb
Carton Unit Quantity	20	20	20	25
Cartons per Pallet / Cartons per Layer	40/8	40/8	40/8	40/8

<sup>4</sup> Rescue services are not available in all countries. Please check with your Seagate sales representative for more details.

<sup>5</sup> Seagate does not recommend operating at sustained drive temperatures above 60°C. Operating at higher temperatures may affect drive health.

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



© 2021 Seagate Technology LLC. All rights reserved. Seagate, Seagate Technology, and the Spiral Logo are registered trademarks of Seagate Technology LLC in the United States and/or other countries. AgileArray and IronWolf are either trademarks or registered trademarks of Seagate Technology LLC or one of its affiliated companies in the United States and/or other countries. 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. Actual data rates may vary depending on operating environment and other factors. Seagate reserves the right to change, without notice, product offerings or specifications. DS1904.18-2103GB March 2021