



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

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

**Built Tough** IronWolf drives are rated for 180TB/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 >=4TB.

<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	12TB	10TB	10TB	8TB	6TB
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)	7200	7200	7200	7200	5400
Cache (MB)	256	256	256	256	256
<b>Reliability</b>					
Load/Unload Cycles	600,000	600,000	600,000	600,000	600,000
Nonrecoverable Read Errors Rate, Max	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E15	1 per 10E14
Power-On Hours	8760	8760	8760	8760	8760
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)	5.0W	5.0W	7.8W	7.8W	3.4W
Standby Mode/Sleep Mode, Typical (W)	1.17/1.17	1.17/1.17	1.0/1.0	1.0/1.0	0.25/0.25
Voltage Tolerance, Inc. Noise (5V)	±5%	±5%	±5%	±5%	±5%
Voltage Tolerance, Inc. Noise (12V)	±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
Nonoperating Temperature (ambient, min °C)	-40	-40	-40	-40	-40
Nonoperating Temperature (ambient, max °C)	70	70	70	70	70
<b>Environmental/Shock</b>					
Shock, Operating/Nonoperating: 2ms (max)	70Gs/250Gs	70Gs/250Gs	70Gs/300Gs	70Gs/300Gs	70Gs/250Gs
<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)	26.11mm/1.028in	26.11mm/1.028in	26.11mm/1.028in	26.11mm/1.028in	26.11mm/1.028in
Width (mm/in, max)	101.85mm/4.010in	101.85mm/4.010in	101.85mm/4.010in	101.85mm/4.01in	101.85mm/4.010in
Depth (mm/in, max)	146.99mm/5.787in	146.99mm/5.787in	146.99mm/5.787in	146.99mm/5.787in	146.99mm/5.787in
Weight (g/lb, typical)	690g/1.521lb	690g/1.521lb	720g/1.59lb	720g/1.59lb	610g/1.345lb
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	4TB	3TB	2TB	1TB
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)	5900	5900	5900	5900
Cache (MB)	64	64	64	64
<b>Reliability</b>				
Load/Unload Cycles	600,000	600,000	600,000	—
Nonrecoverable Read Errors Rate, Max	1 per 10E14	1 per 10E14	1 per 10E14	1 per 10E14
Power-On Hours	8760	8760	8760	8760
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)	3.95W	4.8W	3.56W	2.5W
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 (5V)	±5%	±5%	±5%	±5%
Voltage Tolerance, Inc. Noise (12V)	±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
Nonoperating Temperature (ambient, min °C)	-40	-40	-40	-40
Nonoperating Temperature (ambient, max °C)	70	70	70	70
<b>Environmental/Shock</b>				
Shock, Operating/Nonoperating: 2ms (max)	80Gs/300Gs	80Gs/300Gs	80Gs/300Gs	80Gs/300Gs
<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)	26.11mm/1.028in	26.11mm/1.028in	26.11mm/1.028in	20.20mm/0.795in
Width (mm/in, max)	101.85mm/4.010in	101.85mm/4.010in	101.85mm/4.010in	101.85mm/4.01in
Depth (mm/in, max)	146.99mm/5.787in	146.99mm/5.787in	146.99mm/5.787in	146.99mm/5.787in
Weight (g/lb, typical)	610g/1.345lb	610g/1.345lb	535g/1.18lb	415g/0.915lb
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.

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