



3.5 HDD DATA SHEET

# The Power of Agility for Home, SOHO and SMB NAS Enclosures



IronWolf™ is designed for everything NAS. Get used to tough, ready and scalable 24x7 performance that can handle multi-drive environments across a wide range of capacities.



## Best-Fit Applications

- 1- to 8-bay network attached storage (NAS)
- Desktop RAID and servers
- Multimedia server storage
- Private cloud



## Key Advantages

**Optimized for NAS with AgileArray.™** AgileArray enables dual-plane balancing and RAID optimization in multi-bay environments, with the most advanced power management possible.

**Actively protect your NAS with IronWolf Health Management** focusing on prevention, intervention and recovery.<sup>1</sup>

**High performance means no lag time** or downtime for users during workload traffic for the NAS. Seagate leads the competition with the highest-performing NAS drive portfolio.<sup>2</sup>

**Rotational Vibration (RV) sensors.** First in its class of drives to include RV sensors to maintain high performance in multi-drive NAS enclosures.<sup>3</sup>

**Range of capacities up to 12TB.** More capacity options means more choices that will fit within the budget. Seagate provides a scalable solution for any NAS use-case scenario.

**Do more in multi-user environments.** IronWolf provides a workload rate of 180TB/year. Multiple users can confidently upload and download data to the NAS server, knowing IronWolf can handle the workload, whether you are a creative professional or a small business.

**Designed for always-on, always-accessible 24x7 performance.** Access data on your NAS any time, remotely or on site.

**1M hours MTBF, 3-year limited warranty** represents an improved total cost of ownership (TCO) over desktop drives with reduced maintenance costs.

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

<sup>2</sup> Performance may vary depending on user's hardware configuration and operating system.

<sup>3</sup> Included on 4, 6, 8, 10 and 12TB models.



Specifications	12TB	10TB	8TB	6TB	4TB
Standard Model Numbers	ST12000VN0007	ST10000VN0004	ST8000VN0022	ST6000VN0033	ST4000VN0008
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
Multi-User Technology	180TB/year	180TB/year	180TB/year	180TB/year	180TB/year
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	180MB/s
Spindle Speed (RPM)	7200	7200	7200	7200	5900
Cache (MB)	256	256	256	256	64
<b>Reliability</b>					
Load/Unload Cycles <sup>1</sup>	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
Workload Rate Limit (WRL)	180	180	180	180	180
Mean Time Between Failures (MTBF, hours)	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Limited Warranty (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 (W)	7.8W	7.8W	8.8W	8.1W	4.80W
Idle Average (W)	5.0W	5.0W	7.6W	7.2W	3.95W
Standby Mode/Sleep Mode, Typical (W)	0.8/0.8	0.80/0.80	0.6/0.6	0.6/0.6	0.5/0.5
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 (ambient, min °C)	5	5	5	5	5
Operating (drive case, max °C) <sup>2</sup>	70	70	70	70	70
Nonoperating (ambient, min °C)	-40	-40	-40	-40	-40
Nonoperating (ambient, max °C)	70	70	70	70	70
Halogen Free	Yes	Yes	Yes	Yes	Yes
<b>Environmental/Shock</b>					
Shock, Operating/Nonoperating: 2ms (max)	70Gs/250Gs	70Gs/250Gs	70Gs/250Gs	70Gs/250Gs	80Gs/300Gs
<b>Environmental/Acoustics</b>					
Idle (typical) <sup>3</sup>	2.8bels	2.8bels	2.7bels	2.7bels	2.3bels
Operating (typical)	3.2bels	3.2bels	2.8bels	2.8bels	2.5bels
<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/4.01in	101.85mm/4.01in	101.85mm/4.01in	101.85mm/4.01in	101.85mm/4.01in
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)	705g/1.55lb	705g/1.55lb	780g/1.72lb	705g/1.55lb	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>1</sup> Load/unload tested to 600,000 cycles.

<sup>2</sup> Seagate does not recommend operating at sustained case temperatures above 60°C. Operating at higher temperatures will reduce useful life of the product.

<sup>3</sup> Idle measured in Idle 1 state.



Specifications	3TB	2TB	1TB
Standard Model Numbers	ST3000VN007	ST2000VN004	ST1000VN002
Interface	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
Multi-User Technology	180TB/year	180TB/year	180TB/year
Rotational Vibration (RV) Sensor	No	No	No
Dual-Plane Balance	Yes	Yes	Yes
Error Recovery Control	Yes	Yes	Yes
Max. Sustained Transfer Rate OD (MB/s)	180MB/s	180MB/s	180MB/s
Spindle Speed (RPM)	5900	5900	5900
Cache (MB)	64	64	64
<b>Reliability</b>			
Load/Unload Cycles <sup>1</sup>	600,000	600,000	—
Nonrecoverable Read Errors Rate, Max	1 per 10E14	1 per 10E14	1 per 10E14
Power-On Hours	8760	8760	8760
Workload Rate Limit (WRL)	180	180	180
Mean Time Between Failures (MTBF, hours)	1,000,000	1,000,000	1,000,000
Limited Warranty (years)	3	3	3
<b>Power Management</b>			
Startup Current, Typical (12V, A)	2.0	2.0	1.2
Average Operating Power (W)	4.8W	4.3W	3.76W
Idle Average (W)	4.8W	3.56W	2.5W
Standby Mode/Sleep Mode, Typical (W)	0.5/0.5	0.5/0.5	0.5/0.5
Voltage Tolerance, Inc. Noise (5V)	±5%	±5%	±5%
Voltage Tolerance, Inc. Noise (12V)	±10%	±10%	±10%
<b>Environmental/Temperature</b>			
Operating (ambient, min °C)	5	5	5
Operating (drive case, max °C) <sup>2</sup>	70	70	70
Nonoperating (ambient, min °C)	-40	-40	-40
Nonoperating (ambient, max °C)	70	70	70
Halogen Free	Yes	Yes	Yes
<b>Environmental/Shock</b>			
Shock, Operating/Nonoperating: 2ms (max)	80Gs/300Gs	80Gs/300Gs	80Gs/300Gs
<b>Environmental/Acoustics</b>			
Idle (typical) <sup>3</sup>	2.3bels	1.9bels	2.1bels
Operating (typical)	2.5bels	2.1bels	2.3bels
<b>Physical</b>			
Height (mm/in)	26.11mm/1.028in	26.11mm/1.028in	20.20mm/0.795in
Width (mm/in, max)	101.85mm/4.01in	101.85mm/4.01in	101.85mm/4.01in
Depth (mm/in, max)	146.99mm/5.787in	146.99mm/5.787in	146.99mm/5.787in
Weight (g/lb, typical)	610g/1.345lb	535g/1.18lb	415g/0.915lb
Carton Unit Quantity	20	20	25
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8

<sup>1</sup> Load/unload tested to 600,000 cycles.

<sup>2</sup> Seagate does not recommend operating at sustained case temperatures above 60°C. Operating at higher temperatures will reduce useful life of the product.

<sup>3</sup> Idle measured in Idle 1 state.

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