



3.5 HDD DATA SHEET

## The Power of Agility for Creative Pro and SME NAS Enclosures



IronWolf™ Pro is designed for everything business 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

- Commercial and enterprise network-attached storage (NAS)
- 1- to 24-bay network attached storage (NAS)
- Backup, archiving, and disaster recovery
- On-premise private cloud
- Virtual storage



## 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>

**Seagate® Rescue Data Recovery.<sup>3</sup>** IronWolf Pro comes with extra peace of mind for any mechanical, accidental, or natural disaster. With a 90% success rate of in-house recovery, Seagate has your back with a 3-year included Rescue Data Recovery plan.<sup>4</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 18TB.** 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 300TB/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.

**1.2M hours MTBF, 5-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> Registration required to activate. Rescue recovery services not available in all countries. Contact your Seagate sales representative for further details.

<sup>4</sup> Three-year coverage for product models shipped January 1, 2020, or later



Specifications	18TB	16TB	14TB	12TB	10TB
Capacity	18TB	16TB	14TB	12TB	10TB
Standard Model Number <sup>1</sup>	ST18000NE000	ST16000NE000	ST14000NE0008	ST12000NE0008	ST10000NE0008
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
<b>Features</b>					
Drive Bays Supported	Up to 24-bay	Up to 24-bay	Up to 24-bay	Up to 24-bay	Up to 24-bay
Recording Technology	CMR	CMR	CMR	CMR	CMR
Workload Rate Limit (WRL)	300	300	300	300	300
Rotational Vibration (RV) Sensors	Yes	Yes	Yes	Yes	Yes
Hot-Plug Support <sup>2</sup>	Yes	Yes	Yes	Yes	Yes
Cache (MB)	256	256	256	256	256
<b>Reliability/Data Integrity</b>					
Mean Time Between Failures (MTBF, hours)	1,200,000	1,200,000	1,200,000	1,200,000	1,200,000
Reliability Rating @ Full 24x7 Operation (AFR)	0.73%	0.73%	0.73%	0.73%	0.73%
Nonrecoverable 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)	8760	8760	8760	8760	8760
Sector Size (Bytes per Logical Sector)	512E	512E	512E	512E	512E
Rescue Services <sup>3</sup>	Yes	Yes	Yes	Yes	Yes
Limited Warranty (years)	5	5	5	5	5
<b>Performance</b>					
Spindle Speed (RPM)	7200	7200	7200	7200	7200
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)	260MB/s	255MB/s	255MB/s	240MB/s	240MB/s
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Rotational Vibration @ 10-1500 Hz (rad/s <sup>2</sup> )	12.5	12.5	12.5	12.5	12.5
<b>Power Consumption</b>					
Startup Current, Typical (12V, A)	2.0	2.0	2.0	2.0	2.0
Idle Power, Average (W)	5.2	5.0	5.0	5.0	5.0
Average Operating Power (W)	8.0W	7.6W	7.6W	7.8W	7.8W
Standby Mode, Typical (W)	1.25	1.0	1.0	1.0	0.8
Sleep Mode, Typical (W)	1.0	1.0	1.0	1.0	0.8
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
<b>Environmental/Temperature</b>					
Operating (ambient, min °C)	5	5	5	5	5
Operating (drive reported temperature °C) <sup>4</sup>	65	60	60	60	60
Nonoperating (ambient, min °C)	-40	-40	-40	-40	-40
Nonoperating (ambient, max °C)	70	70	70	70	70
<b>Environmental/Acoustics</b>					
Vibration, Nonoperating: 10Hz to 500Hz (Gms)	2.27	2.27	2.27	2.27	2.27
Acoustics, Idle (typical, measured in Idle 1 state)	2.8bels	2.8bels	2.8bels	2.8bels	2.8bels
Acoustics, Seek (typical)	3.2bels	3.2bels	3.2bels	3.2bels	3bels
<b>Environmental/Shock</b>					
Shock, Operating 2ms (Read/Write) (Gs)	50/50Gs	50/50Gs	50/50Gs	50/50Gs	70/40Gs
Shock, Nonoperating, 1ms and 2ms (Gs)	200	200	200	200	250
<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)	670g/1.477lb	670g/1.477lb	670g/1.477lb	670g/1.477lb	690g/1.521lb
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> Seagate recommends validating your configuration with your HBA/RAID controller manufacturer to ensure full capacity capabilities.

<sup>2</sup> Supports Hot-Plug operation per Serial ATA Revision 3.3 specification.

<sup>3</sup> Rescue recovery services not available in all countries. Contact your Seagate sales representative for further details. Register an IronWolf Pro drive to activate your 2-year Rescue plan at [seagate.com/register](http://seagate.com/register).

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



Specifications	8TB	6TB	4TB
Capacity	8TB	6TB	4TB
Standard Model Number <sup>1</sup>	ST8000NE001	ST6000NE000	ST4000NE001
Interface	SATA 6Gb/s	SATA 6Gb/s	SATA 6Gb/s
<b>Features</b>			
Drive Bays Supported	Up to 24-bay	Up to 24-bay	Up to 24-bay
Recording Technology	CMR	CMR	CMR
Workload Rate Limit (WRL)	300	300	300
Rotational Vibration (RV) Sensors	Yes	Yes	Yes
Hot-Plug Support <sup>2</sup>	Yes	Yes	Yes
Cache (MB)	256	256	128
<b>Reliability/Data Integrity</b>			
Mean Time Between Failures (MTBF, hours)	1,200,000	1,200,000	1,200,000
Reliability Rating @ Full 24x7 Operation (AFR)	0.73%	0.73%	0.73%
Nonrecoverable Read Errors per Bits Read, Max	1 per 10E15	1 per 10E15	1 per 10E15
Power-On Hours (per year)	8760	8760	8760
Sector Size (Bytes per Logical Sector)	512E	512E	512E
Rescue Services <sup>3</sup>	Yes	Yes	Yes
Limited Warranty (years)	5	5	5
<b>Performance</b>			
Spindle Speed (RPM)	7200	7200	7200
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 (MB/s)	240MB/s	220MB/s	220MB/s
Average Latency (ms)	4.16	4.16	4.16
Rotational Vibration @ 10-1500 Hz (rad/s <sup>2</sup> )	12.5	12.5	12.5
<b>Power Consumption</b>			
Startup Current, Typical (12V, A)	2.0	2.0	2.0
Idle Power, Average (W)	7.06	7.06	5.5
Average Operating Power (W)	9.2W	8.1W	9.0W
Standby Mode, Typical (W)	1.0	1.0	1.0
Sleep Mode, Typical (W)	1.0	1.0	1.0
Power Supply Requirements	+12 V and +5 V	+12 V and +5 V	+12 V and +5 V
<b>Environmental/Temperature</b>			
Operating (ambient, min °C)	5	5	5
Operating (drive reported temperature °C) <sup>4</sup>	60	60	60
Nonoperating (ambient, min °C)	-40	-40	-40
Nonoperating (ambient, max °C)	70	70	70
<b>Environmental/Acoustics</b>			
Vibration, Nonoperating: 10Hz to 500Hz (Grms)	2.27	3	3
Acoustics, Idle (typical, measured in Idle 1 state)	1.8bels	2.7bels	2.7bels
Acoustics, Seek (typical)	2.8bels	2.7bels	2.8bels
<b>Environmental/Shock</b>			
Shock, Operating 2ms (Read/Write) (Gs)	70/40Gs	70/40Gs	70/40Gs
Shock, Nonoperating, 1ms and 2ms (Gs)	250	250	300
<b>Physical</b>			
Height (mm/in)	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
Depth (mm/in, max)	146.99mm/5.787in	146.99mm/5.787in	146.99mm/5.787in
Weight (g/lb, typical)	722g/1.59lb	705g/1.55lb	643g/1.42lb
Carton Unit Quantity	20	20	20
Cartons per Pallet/Cartons per Layer	40/8	40/8	40/8

<sup>1</sup> Seagate recommends validating your configuration with your HBA/RAID controller manufacturer to ensure full capacity capabilities.

<sup>2</sup> Supports Hot-Plug operation per Serial ATA Revision 3.3 specification.

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