



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 (Grms)           | 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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