



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 24×7 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

**Optimised for NAS with AgileArray.™** AgileArray enables dual-plane balancing and RAID optimisation 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 16 TB.** 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 180 TB/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 24×7 performance.** Access data on your NAS any time, remotely or on site.

**1 M 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, 12, 14, and 16 TB models.



| Specifications                              | 16 TB              | 14 TB              | 12 TB              | 10 TB              | 8 TB               |
|---------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Capacity                                    | 16 TB              | 14 TB              | 12 TB              | 10 TB              | 8 TB               |
| Standard Model Number                       | ST16000VN001       | ST14000VN0008      | ST12000VN0008      | ST10000VN0008      | ST8000VN004        |
| Interface                                   | SATA 6Gb/s         | SATA 6Gb/s         | SATA 6Gb/s         | SATA 6Gb/s         | SATA 6Gb/s         |
| Features and Performance                    |                    |                    |                    |                    |                    |
| Drive Bays Supported                        | 1 – 8 Bays         | 1 – 8 Bays         | 1 – 8 Bays         | 1 – 8 Bays         | 1 – 8 Bays         |
| Multi-User Technology                       | 180 TB/year        | 180 TB/year        | 180 TB/year        | 180 TB/year        | 180 TB/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            | 210MB/s            |
| Spindle Speed (RPM)                         | 7,200              | 7,200              | 7,200              | 7,200              | 7,200              |
| Cache (MB)                                  | 256                | 256                | 256                | 256                | 256                |
| Reliability                                 |                    |                    |                    |                    |                    |
| Load/Unload Cycles <sup>1</sup>             | 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 10E15        |
| Power-on Hours                              | 8,760              | 8,760              | 8,760              | 8,760              | 8,760              |
| 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                  |
| Power Management                            |                    |                    |                    |                    |                    |
| Startup Current, Typical (12V, A)           | 1.8                | 1.8                | 1.8                | 1.8                | 1.8                |
| Average Operating Power (W)                 | 7.3 W              | 7.3 W              | 7.8 W              | 7.8 W              | 8.8 W              |
| Idling Average (W)                          | 5.3 W              | 5.3 W              | 5 W                | 5 W                | 7.6 W              |
| Standby Mode/Sleep Mode, Typical (W)        | 0.8/0.8            | 0.8/0.8            | 0.8/0.8            | 0.8/0.8            | 0.6/0.6            |
| Voltage Tolerance, Inc. Noise (5 V)         | ±5%                | ±5%                | ±5%                | ±5%                | ±5%                |
| Voltage Tolerance, Inc. Noise (12 V)        | ±10%               | ±10%               | ±10%               | ±10%               | ±10%               |
| Environmental/Temperature                   |                    |                    |                    |                    |                    |
| Operating (ambient, min °C)                 | 5                  | 5                  | 5                  | 5                  | 5                  |
| Operating (drive case, max °C) <sup>2</sup> | 70                 | 70                 | 70                 | 70                 | 70                 |
| Non-operating (ambient, min °C)             | -40                | -40                | -40                | -40                | -40                |
| Non-operating (ambient max °C)              | 70                 | 70                 | 70                 | 70                 | 70                 |
| Halogen-free                                | Yes                | Yes                | Yes                | Yes                | Yes                |
| Environmental/Shock                         |                    |                    |                    |                    |                    |
| Shock, Operating/Non-operating: 2 ms (max)  | 50Gs/200Gs         | 50Gs/200Gs         | 70Gs/250Gs         | 70Gs/250Gs         | 70Gs/250Gs         |
| Environmental/Acoustics                     |                    |                    |                    |                    |                    |
| Idle (typical) <sup>3</sup>                 | 2.8 bels           | 2.8 bels           | 1.8 bels           | 1.8 bels           | 2.8 bels           |
| Seek (typical)                              | 3.0bels            | 3.0bels            | 2.8 bels           | 2.8 bels           | 3.2 bels           |
| Physical                                    |                    |                    |                    |                    |                    |
| 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)                      | 670 g/1.477 lb     | 670 g/1.477 lb     | 690 g/1.521 lb     | 690 g/1.521 lb     | 722 g/1.59 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>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 Idle1 state.



| Specifications                              | 8 TB               | 6 TB               | 4 TB               | 3 TB               | 2 TB               |
|---------------------------------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| Capacity                                    | 8 TB               | 6 TB               | 4 TB               | 3 TB               | 2 TB               |
| Standard Model Number                       | ST8000VN0022       | ST6000VN0033       | ST4000VN008        | ST3000VN007        | ST2000VN004        |
| Interface                                   | SATA 6Gb/s         | SATA 6Gb/s         | SATA 6Gb/s         | SATA 6Gb/s         | SATA 6Gb/s         |
| Features and Performance                    |                    |                    |                    |                    |                    |
| Drive Bays Supported                        | 1 – 8 Bays         | 1 – 8 Bays         | 1 – 8 Bays         | 1 – 8 Bays         | 1 – 8 Bays         |
| Multi-User Technology                       | 180 TB/year        | 180 TB/year        | 180 TB/year        | 180 TB/year        | 180 TB/year        |
| Rotational Vibration (RV) Sensor            | Yes                | Yes                | Yes                | No                 | No                 |
| 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            | 180MB/s            | 180MB/s            | 180MB/s            |
| Spindle Speed (RPM)                         | 7,200              | 7,200              | 5,900              | 5,900              | 5,900              |
| Cache (MB)                                  | 256                | 256                | 64                 | 64                 | 64                 |
| Reliability                                 |                    |                    |                    |                    |                    |
| Load/Unload Cycles <sup>1</sup>             | 600,000            | 600,000            | 600,000            | 600,000            | 600,000            |
| Non-recoverable Read Errors Rate, Max       | 1 per 10E15        | 1 per 10E15        | 1 per 10E14        | 1 per 10E14        | 1 per 10E14        |
| Power-on Hours                              | 8,760              | 8,760              | 8,760              | 8,760              | 8,760              |
| 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                  |
| Power Management                            |                    |                    |                    |                    |                    |
| Startup Current, Typical (12V, A)           | 1.8                | 1.8                | 1.8                | 2                  | 2                  |
| Average Operating Power (W)                 | 8.8 W              | 8.1 W              | 4.8 W              | 4.8 W              | 4.3 W              |
| Idling Average (W)                          | 7.6 W              | 7.2 W              | 3.95 W             | 4.8 W              | 3.56 W             |
| Standby Mode/Sleep Mode, Typical (W)        | 0.6/0.6            | 0.6/0.6            | 0.5/0.5            | 0.5/0.5            | 0.5/0.5            |
| Voltage Tolerance, Inc. Noise (5 V)         | ±5%                | ±5%                | ±5%                | ±5%                | ±5%                |
| Voltage Tolerance, Inc. Noise (12 V)        | ±10%               | ±10%               | ±10%               | ±10%               | ±10%               |
| Environmental/Temperature                   |                    |                    |                    |                    |                    |
| Operating (ambient, min °C)                 | 5                  | 5                  | 5                  | 5                  | 5                  |
| Operating (drive case, max °C) <sup>2</sup> | 70                 | 70                 | 70                 | 70                 | 70                 |
| Non-operating (ambient, min °C)             | -40                | -40                | -40                | -40                | -40                |
| Non-operating (ambient max °C)              | 70                 | 70                 | 70                 | 70                 | 70                 |
| Halogen-free                                | Yes                | Yes                | Yes                | Yes                | Yes                |
| Environmental/Shock                         |                    |                    |                    |                    |                    |
| Shock, Operating/Non-operating: 2 ms (max)  | 70Gs/250Gs         | 70Gs/250Gs         | 80Gs/300Gs         | 80Gs/300Gs         | 80Gs/300Gs         |
| Environmental/Acoustics                     |                    |                    |                    |                    |                    |
| Idle (typical) <sup>3</sup>                 | 2.7 bels           | 2.7 bels           | 2.3 bels           | 2.3 bels           | 1.9 bels           |
| Seek (typical)                              | 2.8 bels           | 2.8 bels           | 2.5 bels           | 2.5 bels           | 2.1 bels           |
| Physical                                    |                    |                    |                    |                    |                    |
| 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)                      | 780 g/1.72 lb      | 705 g/1.55 lb      | 610 g/1.345 lb     | 610 g/1.345 lb     | 535 g/1.18 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>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 Idle1 state.



| Specifications                              | 1 TB               |
|---------------------------------------------|--------------------|
| Capacity                                    | 1 TB               |
| Standard Model Number                       | ST1000VN002        |
| Interface                                   | SATA 6Gb/s         |
| <b>Features and Performance</b>             |                    |
| Drive Bays Supported                        | 1 – 8 Bays         |
| Multi-User Technology                       | 180 TB/year        |
| Rotational Vibration (RV) Sensor            | No                 |
| Dual-Plane Balance                          | Yes                |
| Error Recovery Control                      | Yes                |
| Max. Sustained Transfer Rate OD (MB/s)      | 180MB/s            |
| Spindle Speed (RPM)                         | 5,900              |
| Cache (MB)                                  | 64                 |
| <b>Reliability</b>                          |                    |
| Load/Unload Cycles <sup>1</sup>             | —                  |
| Non-recoverable Read Errors Rate, Max       | 1 per 10E14        |
| Power-on Hours                              | 8,760              |
| Workload Rate Limit (WRL)                   | 180                |
| Mean Time Between Failures (MTBF, hours)    | 1,000,000          |
| Limited Warranty (years)                    | 3                  |
| <b>Power Management</b>                     |                    |
| Startup Current, Typical (12V, A)           | 1.2                |
| Average Operating Power (W)                 | 3.76 W             |
| Idling Average (W)                          | 2.5 W              |
| Standby Mode/Sleep Mode, Typical (W)        | 0.5/0.5            |
| Voltage Tolerance, Inc. Noise (5 V)         | ±5%                |
| Voltage Tolerance, Inc. Noise (12 V)        | ±10%               |
| <b>Environmental/Temperature</b>            |                    |
| Operating (ambient, min °C)                 | 5                  |
| Operating (drive case, max °C) <sup>2</sup> | 70                 |
| Non-operating (ambient, min °C)             | -40                |
| Non-operating (ambient max °C)              | 70                 |
| Halogen-free                                | Yes                |
| <b>Environmental/Shock</b>                  |                    |
| Shock, Operating/Non-operating: 2 ms (max)  | 80Gs/300Gs         |
| <b>Environmental/Acoustics</b>              |                    |
| Idle (typical) <sup>3</sup>                 | 2.1 bels           |
| Seek (typical)                              | 2.3 bels           |
| <b>Physical</b>                             |                    |
| Height (mm/in)                              | 20.2 mm/0.795 in   |
| Width (mm/in, max)                          | 101.85 mm/4.01 in  |
| Depth (mm/in, max)                          | 146.99 mm/5.787 in |
| Weight (g/lb, typical)                      | 415 g/0.915 lb     |
| Carton Unit Quantity                        | 25                 |
| Cartons per Pallet / Cartons per Layer      | 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 Idle1 state.

|                                 |                                                                                                                |
|---------------------------------|----------------------------------------------------------------------------------------------------------------|
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