

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

**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>

**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 2-year included Rescue Data Recovery plan.

**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 300 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 24x7 performance.** Access data on your NAS any time, remotely or on site.

**1.2 M 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.



Specifications	16 TB	14 TB	12 TB	10 TB	8 TB
Capacity	16TB	14TB	12TB	10TB	8TB
Standard Model Number <sup>1</sup>	ST16000NE000	ST14000NE0008	ST12000NE0008	ST10000NE0008	ST8000NE001
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%
Non-recoverable 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 (24x7)	8,760	8,760	8,760	8,760	8,760
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)	7,200	7,200	7,200	7,200	7,200
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)	255MB/s	255MB/s	240MB/s	240MB/s	240MB/s
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Interface Ports	Single	Single	Single	Single	Single
Rotational Vibration @ 10-1,500 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	2	2	2	2
Idle Power, Average (W)	5	5	5	5	7.06
Average Operating Power (W)	7.6 W	7.6 W	7.8 W	7.8 W	9.2 W
Standby Mode (W)	1	1	1	0.8	1
Sleep Mode (W)	1	1	1	0.8	1
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 case, max °C)	60	60	60	60	60
Non-operating (ambient, min °C)	-40	-40	-40	-40	-40
Non-operating (ambient max °C)	70	70	70	70	70
<b>Environmental/Acoustics</b>					
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	2.27	2.27	2.27	2.27	2.27
Idle (typical) <sup>3</sup>	2.8 bels	2.8 bels	2.8 bels	2.8 bels	1.8 bels
Seek (typical)	3.2 bels	3.2 bels	3.2 bels	3bels	2.8 bels
<b>Environmental/Shock</b>					
Shock, Operating 2 ms (Read/Write) (Gs)	50/50 Gs	50/50 Gs	50/50 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, 1 ms and 2 ms (Gs)	200	200	200	250	250
<b>Physical</b>					
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 (lb/g)	670 g/1.477 lb	670 g/1.477 lb	670 g/1.477 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> 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 2.6 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).



Specifications	8 TB	6 TB	6 TB	4 TB	4 TB
Capacity	8TB	6TB	6TB	4TB	4TB
Standard Model Number <sup>1</sup>	ST8000NE0021	ST6000NE000	ST6000NE0023	ST4000NE001	ST4000NE0025
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	128	128
<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%
Non-recoverable 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 (24x7)	8,760	8,760	8,760	8,760	8,760
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)	7,200	7,200	7,200	7,200	7,200
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)	240MB/s	220MB/s	220MB/s	220MB/s	220MB/s
Average Latency (ms)	4.16	4.16	4.16	4.16	4.16
Interface Ports	Single	Single	Single	Single	Single
Rotational Vibration @ 10-1,500 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	2	2	2	2
Idle Power, Average (W)	8.63	7.06	7.5	5.5	5.45
Average Operating Power (W)	8.78 W	8.1 W	8.1 W	9 W	8.5 W
Standby Mode (W)	0.8	1	0.6	1	0.6
Sleep Mode (W)	0.8	1	0.6	1	0.6
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 case, max °C)	60	60	60	60	60
Non-operating (ambient, min °C)	-40	-40	-40	-40	-40
Non-operating (ambient max °C)	70	70	70	70	70
<b>Environmental/Acoustics</b>					
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	2.27	3	3	3	3
Idle (typical) <sup>3</sup>	1.8 bels	2.7 bels	2.7 bels	2.7 bels	2.7 bels
Seek (typical)	2.8 bels	2.7 bels	2.7 bels	2.8 bels	2.8 bels
<b>Environmental/Shock</b>					
Shock, Operating 2 ms (Read/Write) (Gs)	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs	70/40 Gs
Shock, Non-operating, 1 ms and 2 ms (Gs)	250	250	250	300	300
<b>Physical</b>					
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 (lb/g)	780 g/1.72 lb	705 g/1.55 lb	705 g/1.55 lb	643 g/1.42 lb	680 g/1.5 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> 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 2.6 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).



Specifications	2 TB
Capacity	2TB
Standard Model Number <sup>1</sup>	ST2000NE0025
Interface	SATA 6Gb/s
<b>Features</b>	
Drive Bays Supported	Up to 24-bay
Recording Technology	CMR
Workload Rate Limit (WRL)	300
Rotational Vibration (RV) Sensors	Yes
Hot-Plug Support <sup>2</sup>	Yes
Cache (MB)	128
<b>Reliability/Data Integrity</b>	
Mean Time Between Failures (MTBF, hours)	1,200,000
Reliability Rating @ Full 24x7 Operation (AFR)	0.73%
Non-recoverable Read Errors per Bits Read, Max	1 per 10E15
Power-On Hours per Year (24x7)	8,760
Sector Size (Bytes per Logical Sector)	512
Rescue Services <sup>3</sup>	Yes
Limited Warranty (years)	5
<b>Performance</b>	
Spindle Speed (RPM)	7,200
Interface Access Speed (Gb/s)	6.0, 3.0, 1.5
Max. Sustained Transfer Rate OD (MB/s)	195MB/s
Average Latency (ms)	4.16
Interface Ports	Single
Rotational Vibration @ 10-1,500 Hz (rad/s <sup>2</sup> )	12.5
<b>Power Consumption</b>	
Startup Current, Typical (12V, A)	2
Idle Power, Average (W)	4.61
Average Operating Power (W)	6.5 W
Standby Mode (W)	0.8
Sleep Mode (W)	0.8
Power Supply Requirements	+12 V and +5 V
<b>Environmental/Temperature</b>	
Operating (ambient, min °C)	5
Operating (drive case, max °C)	60
Non-operating (ambient, min °C)	-40
Non-operating (ambient max °C)	70
<b>Environmental/Acoustics</b>	
Vibration, Non-operating: 10 Hz to 500 Hz (Grms)	3
Idle (typical) <sup>3</sup>	2.2 bels
Seek (typical)	2.6 bels
<b>Environmental/Shock</b>	
Shock, Operating 2 ms (Read/Write) (Gs)	70/40 Gs
Shock, Non-operating, 1 ms and 2 ms (Gs)	300
<b>Physical</b>	
Height (mm/in)	26.11 mm/1.028 in
Width (mm/in, max)	101.85 mm/4.01 in
Depth (mm/in, max)	146.99 mm/5.787 in
Weight (lb/g)	550 g/1.21 lb
Carton Unit Quantity	20
Cartons per Pallet / Cartons per Layer	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 2.6 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).

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