Maximum Storage Capacity for Highest Rack Space Efficiency

- 12TB per drive\(^1\) for 50% more petabytes per rack\(^2\)
- Industry’s lowest power and weight for optimum data center TCO
- Highest 12TB HDD performance with enhanced caching, making it perfect for Big Data applications
- Hyperscale SATA model tuned for large data transfers
- PowerBalance\(^{TM}\) feature optimizes IOPS/Watt
- Advanced Write Caching feature for 20% boost in random write performance\(^2\)
- Forged, wrought-aluminum base and a helium sealed-drive design with no porosity and uniform density
- Superior material and weld-width design for a more robust, hermetically sealed-drive enclosure that protects from helium leaks
- Digital environmental sensors for measuring internal pressure, helping to ensure high reliability, performance and quality
- Latest hermetic interconnect technology supporting higher data rate heads and higher pin counts for extreme thermal conditions
- Proven enterprise-class reliability backed by 2.5M-hr MTBF

Best-Fit Applications

- Hyperscale applications/cloud data centers
- Massive scale-out data centers
- Big Data applications
- High-capacity density RAID storage
- Mainstream enterprise external storage arrays
- Distributed file systems, including Hadoop and Ceph
- Enterprise backup and restore—D2D, virtual tape
- Centralized surveillance

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1 Seagate recommends validating your configuration with your HBA/RAID controller manufacturer to ensure full capacity capabilities.
2 Compared to 8TB competitive product.
### Enterprise Capacity

#### 3.5 HDD (Helium)

**Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>SATA 6Gb/s</th>
<th>12Gb/s SAS</th>
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<tbody>
<tr>
<td><strong>Capacity</strong></td>
<td>12TB</td>
<td>12TB</td>
</tr>
<tr>
<td><strong>Standard Model (512e)</strong></td>
<td>ST12000NM0007</td>
<td>ST12000NM0007</td>
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<tr>
<td><strong>Standard Model (4Kn)</strong></td>
<td>ST12000NM0047</td>
<td>ST12000NM0067</td>
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<tr>
<td><strong>SED Model (4Kn)</strong></td>
<td>ST12000NM0057</td>
<td>ST12000NM0077</td>
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<td><strong>SED Model (512e)</strong></td>
<td>ST12000NM0017</td>
<td>ST12000NM0037</td>
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<tr>
<td><strong>SED-FIPS Model (4Kn)</strong></td>
<td>ST12000NM0157</td>
<td>ST12000NM0167</td>
</tr>
<tr>
<td><strong>SED-FIPS Model (512e)</strong></td>
<td>ST12000NM0137</td>
<td>ST12000NM0147</td>
</tr>
</tbody>
</table>

### Features

- Superior Helium Sealed Drive Design With Wide Weld
- Digital Sensors for Helium Pressure Protection Information (T10 DIF)
- SuperParity
- PowerChoice™/PowerBalance™ Technology
- Low Halogen/Hot-Plug Support
- Organic Solderability Preservative
- Secure Download and Diagnostics (SD&D) RSA 2048 signed firmware

### Reliability/Durability

- Mean Time Between Failures (MTBF, hours): 2.5 Million
- Reliability Rating @ Full 24x7 Operation (AFR): 0.35%
- Power-On Hours per Year (24x7): 8760
- 512e Sector Size (Bytes per Sector): 512
- 4Kn Sector Size (Bytes per Sector): 4096
- Limited Warranty (years): 5

### Performance

- Spindle Speed (RPM): 7200
- Interface Access Speed (Gb/s): 6.0, 3.0
- Max. Sustained Transfer Rate OD (MB/s, MiB/s): Up to 261, 249
- Random Read/Write 4K QD16 WCD (IOPS): 170/400
- Interface Ports: Single
- Rotational Vibration @ 1500Hz (rad/s²): 12.5
- Interface Consumption: 5.0W
- Average Latency (ms): 4.16
- Operations: 9.3
- Power Supply Requirements: +12 V and +5 V
- Temperature, Operating (°C): 5°C – 60°C
- Vibration, Nonoperating: 10Hz to 500Hz (Grms): 2.27
- Physical: 2.27

### Dimensions

- Height (mm, max): 26.11mm/1.028in
- Width (mm, max): 101.60mm/4.0in
- Depth (mm, max): 147.0mm/5.787in
- Weight (lb): 650g/1.433lb
- Carton Unit Quantity: 20
- Cartons per Pallet / Cartons per Layer: 40 / 8

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1. Self-Encrypting Drives (SED) and FIPS 140-2 Validated drives are not available in all models or countries. May require TCG compliant host or controller support.
3. 4 SATA Random 8K 50% Write/50% Read WCD @ 40 IO/s, SAS Random 4K 50% Write/50% Read WCD @ 165 IO/s
4. These base deck dimensions conform to the Small Form Factor Standard (SFF-8301) found at www.sffcommittee.org. For connector-related dimensions, see SFF-8323.