There's a leading edge WD Red drive for every compatible NAS system to help fulfill your data storage needs. With drives up to 12TB, WD Red drives offer a wide array of solutions for customers looking to build a NAS storage solution. Built for single-bay to 8-bay NAS systems, WD Red drives pack the power to store your precious data in one powerhouse unit. With WD Red drives, you’re ready for what’s next.

Exclusive NASware™ 3.0
Not just any drive will do. In single-bay to 8-bay NAS systems, WD Red drives raise the bar. Get as much as 96TB capacity, and with WD’s exclusive NASware™ technology, you can optimize every single one of them. Built into every WD Red hard drive, NASware 3.0’s advanced technology improves your system’s storage performance by increasing compatibility, integration, upgradeability, and reliability.

Built for optimum NAS compatibility
Desktop drives aren’t purpose-built for NAS. But WD Red drives with NASware technology are. Our exclusive technology takes the guesswork out of selecting a drive. WD Red drives are for small NAS systems, and our unique algorithm balances performance and reliability in NAS and RAID environments. Simply put, WD Red drives are a reflection of extensive NAS partner technology engagement and compatibility-testing resulting in a leading compatibility list for NAS systems.

Desktop Drives vs. WD Red
In a Network Attached Storage device, a desktop hard drive is not typically designed for NAS environments. Do right by your NAS and choose the drive designed for NAS with an array of features to help preserve your data and maintain optimum performance. Take the following into consideration when choosing a hard drive for your NAS:
- Compatibility: Without being tested for compatibility with your NAS system, optimum performance is not guaranteed.
- Reliability: The always-on environment of a NAS or RAID is a challenging one. And desktop drives aren’t typically designed and tested under those conditions. WD Red drives are.
- Error recovery controls: WD Red NAS hard drives are specifically designed with RAID error recovery control to help reduce failures within the NAS system. Desktop drives are not typically designed for RAID environments.
- Noise and Vibration Protection: Designed to operate solo, desktop drives typically offer little or no protection from the noise and vibration present in a multi-drive system. WD Red drives are designed for multi-bay NAS systems.

WD Red for Home
Stream, backup, share, and organize your digital content at home with a NAS and WD Red drives designed to effortlessly share content with the devices in your home. NASware 3.0 technology increases your drives’ compatibility with your devices, TV, stereo, and more. Live in a connected world.

WD Red for Small Business
Businesses thrive on productivity and efficiency—two of the guiding principles built into the design of WD Red drives. It’s the hard drive of choice for 1 to 8 bay systems. NASware 3.0 technology allows for seamless integration with your existing network so WD Red can share and backup files at the speed of your business. And for larger businesses with up to 24-bays, count on WD Red Pro™ drives.

WD Red Pro for Big Business
If you’re looking for maximum performance in a heavy use NAS, WD Red Pro drives deliver the same exceptional performance for the business customer. For NAS environments with 8 to 24 bays, WD Red Pro drives are designed to handle an increase in workload and comes with a 5-year limited warranty.

*Workload Rate is defined as the amount of user data transferred to or from the hard drive. Workload Rate is annualized (TB transferred X (8760 / recorded power-on hours)). Workload Rate will vary depending on your hardware and software components and configurations.
# WD Red™ NAS HARD DRIVES

## Specifications

### Performance

<table>
<thead>
<tr>
<th>Model Number¹</th>
<th>Interface²</th>
<th>Formatted capacity³</th>
<th>Form factor</th>
<th>Native command queuing</th>
<th>Advanced Format (AF)</th>
<th>RoHS compliant³</th>
</tr>
</thead>
<tbody>
<tr>
<td>WD120EFAA</td>
<td>SATA 6 Gb/s</td>
<td>12TB</td>
<td>3.5-inch</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>WD100EFAA</td>
<td>SATA 6 Gb/s</td>
<td>10TB</td>
<td>3.5-inch</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>WD80EFAA</td>
<td>SATA 6 Gb/s</td>
<td>8TB</td>
<td>3.5-inch</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>WD60EFAA</td>
<td>SATA 6 Gb/s</td>
<td>6TB</td>
<td>3.5-inch</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>WD60EFRX</td>
<td>SATA 6 Gb/s</td>
<td>6TB</td>
<td>3.5-inch</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

### Reliability/Data Integrity

<table>
<thead>
<tr>
<th>Load/Unload cycles⁴</th>
<th>Non-recoverable errors per bits read</th>
<th>MTBF (hours)⁵</th>
<th>Workload Rate (TB/year)⁶</th>
<th>Limited warranty (years)⁷</th>
</tr>
</thead>
<tbody>
<tr>
<td>600,000</td>
<td>&lt;1 in 10¹⁴</td>
<td>1,000,000</td>
<td>180</td>
<td>3</td>
</tr>
<tr>
<td>600,000</td>
<td>&lt;1 in 10¹⁴</td>
<td>1,000,000</td>
<td>180</td>
<td>3</td>
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<tr>
<td>600,000</td>
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<td>3</td>
</tr>
<tr>
<td>600,000</td>
<td>&lt;1 in 10¹⁴</td>
<td>1,000,000</td>
<td>180</td>
<td>3</td>
</tr>
</tbody>
</table>

### Power Management

<table>
<thead>
<tr>
<th>12VDC ±5% (A, peak)</th>
<th>5VDC ±5% (A, peak)</th>
<th>Average power requirements (W)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.84</td>
<td>1.79</td>
<td>Read/Write 6.3</td>
</tr>
<tr>
<td>1.85</td>
<td>1.79</td>
<td>Idle 2.9</td>
</tr>
<tr>
<td>1.75</td>
<td>1.75</td>
<td>Standby and Sleep 0.6</td>
</tr>
</tbody>
</table>

### Environmental Specifications

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Operating</th>
<th>Non-operating</th>
<th>Shock (Gs)</th>
<th>Acoustics (dBA)¹²</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 65</td>
<td>0 to 65</td>
<td>0 to 65</td>
<td>30</td>
<td>20</td>
</tr>
<tr>
<td>-40 to 70</td>
<td>-40 to 70</td>
<td>30</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>-40 to 70</td>
<td>-40 to 70</td>
<td>30</td>
<td>30</td>
<td>27</td>
</tr>
<tr>
<td>-40 to 70</td>
<td>-40 to 70</td>
<td>30</td>
<td>30</td>
<td>27</td>
</tr>
</tbody>
</table>

### Physical Dimensions

<table>
<thead>
<tr>
<th>Height (mm, max)</th>
<th>Length (in./mm, max)</th>
<th>Width (in./mm, ± .01 in.)</th>
<th>Weight (lb/kg, ± 10%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.028/26.1</td>
<td>5.787/147</td>
<td>4/101.6</td>
<td>1.46/0.66</td>
</tr>
<tr>
<td>1.028/26.1</td>
<td>5.787/147</td>
<td>4/101.6</td>
<td>1.43/0.65</td>
</tr>
<tr>
<td>1.028/26.1</td>
<td>5.787/147</td>
<td>4/101.6</td>
<td>1.58/0.715</td>
</tr>
<tr>
<td>1.028/26.1</td>
<td>5.787/147</td>
<td>4/101.6</td>
<td>1.40/0.64</td>
</tr>
</tbody>
</table>

### Specifications subject to change without notice.

¹ Not all products may be available in all regions of the world.

² As used for storage capacity, one megabyte (MB) = one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on operating environment.

³ As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes.

⁴ Effective maximum SATA 6 Gb/s transfer rate calculated according to the Serial ATA specification published by the SATA-IO organization as of the date of this specification sheet. Visit www.sata-io.org for details. Performance will vary depending on your hardware and software components and configurations.

⁵ MTBF is based on a sample population and is estimated by statistical measurements and acceleration algorithms. MTBF does not predict an individual drive’s reliability and does not constitute a warranty.

⁶ Workload Rate is defined as the amount of user data transferred to or from the hard drive. Workload Rate is annualized (TB transferred X (8760 / recorded power-on hours)). Workload Rate will vary depending on your hardware and software components and configurations.

⁷ See support.wdc.com/warranty for regionally specific warranty details.

⁸ Power measurements at room-ambient temperature.

⁹ No non-recoverable errors during operating tests or after non-operating tests.

¹⁰ Sound power level.

¹¹ Western Digital.

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**NOTES:**

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- As used for storage capacity, one megabyte (MB) = one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on operating environment. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As used for transfer rate or interface, one megabyte per second (MB/s) = one million bytes per second, and gigabit per second (Gb/s) = one billion bits per second. Effective maximum SATA 6 Gb/s transfer rate calculated according to the Serial ATA specification published by the SATA-IO organization as of the date of this specification sheet. Visit www.sata-io.org for details. Performance will vary depending on your hardware and software components and configurations.
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- WD hard drive products manufactured and sold worldwide after June 8, 2011, meet or exceed Restriction of Hazardous Substances (RoHS) compliance requirements as mandated by the RoHS Directive 2011/65/EU.
- Controlled unload at ambient condition.
- MTBF specifications are based upon internal testing using a 40°C base casting temperature. MTBF is based on a sample population and is estimated by statistical measurements and acceleration algorithms. MTBF does not predict an individual drive’s reliability and does not constitute a warranty.
- As used for storage capacity, one megabyte (MB) = one million bytes, one gigabyte (GB) = one billion bytes, and one terabyte (TB) = one trillion bytes. Total accessible capacity varies depending on operating environment. As used for buffer or cache, one megabyte (MB) = 1,048,576 bytes. As used for transfer rate or interface, one megabyte per second (MB/s) = one million bytes per second, and gigabit per second (Gb/s) = one billion bits per second. Effective maximum SATA 6 Gb/s transfer rate calculated according to the Serial ATA specification published by the SATA-IO organization as of the date of this specification sheet. Visit www.sata-io.org for details. Performance will vary depending on your hardware and software components and configurations.
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- Controlled unload at ambient condition.
- MTBF specifications are based upon internal testing using a 40°C base casting temperature. MTBF is based on a sample population and is estimated by statistical measurements and acceleration algorithms. MTBF does not predict an individual drive’s reliability and does not constitute a warranty.
### Specifications

#### 4TB

- **Model Number**: WD40EFRX
- **Interface**: SATA 6 Gb/s
- **Form factor**: 3.5-inch
- **Formatted capacity**: 4TB
- **Cache (MB)**: 64
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 150 MB/s
- **Cache (MB)**: 64
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Advanced Format (AF)**: Yes
- **Rohs compliance**: Yes

#### 3TB

- **Model Number**: WD30EFRX
- **Interface**: SATA 6 Gb/s
- **Form factor**: 3.5-inch
- **Formatted capacity**: 3TB
- **Cache (MB)**: 64
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Cache (MB)**: 64
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Advanced Format (AF)**: Yes
- **Rohs compliance**: Yes

#### 2TB

- **Model Number**: WD20EFRX
- **Interface**: SATA 6 Gb/s
- **Form factor**: 3.5-inch
- **Formatted capacity**: 2TB
- **Native command queuing**: 3
- **RoHS compliant**: Yes
- **Average power requirements (W)**: 5VDC ±5% (A, peak)
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Cache (MB)**: 64
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Advanced Format (AF)**: Yes
- **Rohs compliance**: Yes

#### 1TB

- **Model Number**: WD10EFRX
- **Interface**: SATA 6 Gb/s
- **Form factor**: 3.5-inch
- **Formatted capacity**: 1TB
- **Native command queuing**: 3
- **RoHS compliant**: Yes
- **Average power requirements (W)**: 5VDC ±5% (A, peak)
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Cache (MB)**: 64
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Advanced Format (AF)**: Yes
- **Rohs compliance**: Yes

#### 1TB

- **Model Number**: WD10EFRX
- **Interface**: SATA 6 Gb/s
- **Form factor**: 3.5-inch
- **Formatted capacity**: 1TB
- **Native command queuing**: 3
- **RoHS compliant**: Yes
- **Average power requirements (W)**: 5VDC ±5% (A, peak)
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Cache (MB)**: 64
- **Performance Class**: 5400 RPM Class
- **Interface Transfer Rate**: 147 MB/s
- **Advanced Format (AF)**: Yes
- **Rohs compliance**: Yes

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### Environmental Specifications

- **Temperature (°C)**
  - Operating: 0 to 60
  - Non-operating: 40 to 70
- **Shock (Gs)**
  - Operating, (2 ms, read/write): 30
  - Operating, (2 ms, read): 65
  - Non-operating (2 ms): 250
- **Acoustics (dBA)**
  - Idle: 25
  - Seek: 28

### Physical Dimensions

- **Height (in./mm)**
  - 102.8/261.7
- **Length (in./mm, max)**
  - 5.787/147
- **Width (in./mm, a. 01 in.)**
  - 4/101.6
- **Weight (lbs/kg, ± 10%)**
  - 1.30/0.59

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**Specifications subject to change without notice.**

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3. WD hard drive products manufactured and sold worldwide after June 8, 2011, meet or exceed Restriction of Hazardous Substances (RoHS) compliance requirements as mandated by the RoHS Directive 2011/65/EU.
4. Power measurements at room-ambient temperature.
5. No non-recoverable errors during operating tests or after non-operating tests.
6. Workload Rate is defined as the amount of user data transferred to or from the hard drive. Workload Rate will vary depending on your hardware and software components and configurations.
7. MTBF specifications are based upon internal testing using a 40°C base casting temperature. MTBF is based on a sample population and is estimated by statistical measurements and acceleration algorithms. MTBF does not predict an individual drive’s reliability and does not constitute a warranty.
8. Power measurements at room-ambient temperature.
9. MTBF specifications are based upon internal testing using a 60°C base casting temperature. MTBF is based on a sample population and is estimated by statistical measurements and acceleration algorithms. MTBF does not predict an individual drive’s reliability and does not constitute a warranty.