WD Caviar® Black™ Desktop Hard Drives

WD Caviar Black drives combine a high performance electronics architecture with a rock solid mechanical architecture to deliver the perfect storage solution for your fully-loaded PC or maxed out gaming machine. Cool drive operation, no-touch head technology, leading-edge vibration protection ensure enhanced reliability.

**INTERFACE**
SATA 6 Gb/s

**WIDTH/HEIGHT**
3.5-inch/1-inch

**ROTATIONAL SPEED**
7200 RPM

**CAPACITIES**
500 GB to 2 TB

**MODEL NUMBERS**
WD2002FAEX  WD7502AAEX  
WD1502FAEX  WD5003AZEX  
WD1002FAEX  WD5002AALX

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

**Rock Solid Mechanical Architecture**
- Dual actuator technology
  A head positioning system with two actuators that improves positional accuracy over the data track(s). The primary actuator provides coarse displacement using conventional electromagnetic actuator principles. The secondary actuator uses a piezoelectric motor to fine tune the head positioning to a higher degree of accuracy. (2 TB and 1.5 TB models only)
- StableTrac™ — The motor shaft is secured at both ends to reduce system-induced vibration and stabilize platters for accurate tracking, during read and write operations. (2 TB and 1.5 TB models only)
- NoTouch™ ramp load technology
  The recording head never touches the disk media ensuring significantly less wear to the recording head and media, as well as better drive protection in transit.

**Product Features**

**High Performance Electronics Architecture**
- Dual processor — Twice the processing power to maximize performance.
- Colossal cache — Bigger, faster cache of up to 64 MB means faster performance.

**Massive Capacity**
WD Caviar Black SATA drives are available in capacities up to 2 TB.

**Applications**
- Power computing applications such as multimedia, video and photo editing, and maxed out gaming computers.
- Desktop / Consumer RAID Environments - WD Caviar Black Hard Drives are tested and recommended for use in consumer-type RAID applications (RAID-0 / RAID-1).
- Business Critical RAID Environments – WD Caviar Black Hard Drives are not recommended for and are not warranted for use in RAID environments utilizing Enterprise HBAs and/or expanders and in multi-bay chassis, as they are not designed for, nor tested in, these specific types of RAID applications. For all Business Critical RAID applications, please consider WD’s Enterprise Hard Drives that are specifically designed with RAID-specific, time-limited error recovery (TLER), are tested extensively in 24x7 RAID applications, and include features like enhanced RAFF technology and thermal extended burn-in testing.

**Compatible**
We perform tests on hundreds of systems and a multitude of platforms in our FIT Lab™ and Mobile Compatibility Lab to give our customers confidence that our drives will work in their systems.

**5-year limited warranty**

PUT YOUR LIFE ON IT®
### WD Caviar Black

WD Caviar Black is part of WD's complete lineup of desktop hard drives.

![WD Caviar Black Logo]

**Specifications**

<table>
<thead>
<tr>
<th>Model number</th>
<th>2 TB</th>
<th>1.5 TB</th>
<th>1 TB</th>
<th>750 GB</th>
<th>500 GB</th>
<th>500 GB</th>
</tr>
</thead>
<tbody>
<tr>
<td>Formatted capacity</td>
<td>2,000,398 MB</td>
<td>1,500,301 MB</td>
<td>1,000,204 MB</td>
<td>720,156 MB</td>
<td>500,107 MB</td>
<td>500,107 MB</td>
</tr>
<tr>
<td>User sectors per drive</td>
<td>3,907,029,168</td>
<td>2,930,277,168</td>
<td>1,953,525,169</td>
<td>1,465,149,168</td>
<td>976,773,168</td>
<td>976,773,168</td>
</tr>
<tr>
<td>SATA latching connector</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Form factor</td>
<td>3.5-inch</td>
<td>3.5-inch</td>
<td>3.5-inch</td>
<td>3.5-inch</td>
<td>3.5-inch</td>
<td>3.5-inch</td>
</tr>
<tr>
<td>RoHS compliant</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Performance**

- **Data transfer rate (max)**: 6 Gb/s
- **Buffer to host**: 138 MB/s
- **Host to/from drive (sustained)**: 6 Gb/s
- **Buffet to host**: 138 MB/s
- **Host to/from drive (sustained)**: 126 MB/s
- **Caché (MB)**: 64
- **Rotational speed (RPM)**: 7200
- **Load/unload cycles**: 300,000
- **Non-recoverable read errors per bits read**: <1 in 10^14
- **Limited warranty (years)**: 5
- **Power Management**
- **Average power requirements (W)**
  - **Read/Write**: 10.7
  - **Idle**: 8.2
  - **Standby**: 1.3
  - **Sleep**: 1.3
- **Average acoustics (dBA)**
  - **Idle mode**: 29
  - **Seek mode**: 34

**Environmental Specifications**

- **Temperature (°C)**
  - **Operating**: 0 to 60
  - **Non-operating**: -40 to 70
- **Shock (Gs)**
  - **Operating (2 ms, read)**: 30
  - **Operating (2 ms, read/write)**: 65
  - **Non-operating (2 ms)**: 300
- **Average acoustics (dBA)**
  - **Idle mode**: 29
  - **Seek mode**: 34

**Physical Dimensions**

- **Height (in./mm, max)**: 1.028/25.4
- **Length (in./mm, max)**: 5.787/147
- **Width (in./mm, ± .01 in.)**: 4.101.6
- **Weight (lb./kg, ± 10%)**: 1.66/0.75

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1. 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, megabyte per second (MB/s) = one million bytes per second, and gigabit per second (Gb/s) = one billion bits per second. Effective maximum SATA 3 Gb/s and SATA 6 Gb/s transfer rates 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.

2. WD hard drive products manufactured and sold worldwide after June 1, 2006, meet or exceed Restriction of Hazardous Substances (RoHS) compliance requirements as mandated by the RoHS Directive 2011/65/EU.

3. Controlled unload at ambient condition


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

6. Sound power level.