



# 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. And we back it all up with a 5-year limited warranty.



### INTERFACE

SATA 6 Gb/s  
SATA 3 Gb/s

### WIDTH/HEIGHT

3.5-inch/1-inch

### ROTATIONAL SPEED

7200 RPM

### CAPACITIES

500 GB to 2 TB

### MODEL NUMBERS

WD2001FASS	WD6402AAEX
WD1002FAEX	WD6401AALS
WD1001FALS	WD5001AALS
WD7501AALS	

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

## 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.

### 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 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. (750 GB, 1 TB, and 2 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.

### Massive Capacity

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

### 5-year limited warranty

### 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.

PUT YOUR LIFE ON IT®



# WD Caviar Black

Specifications <sup>1</sup>	2 TB	1 TB	1 TB	750 GB	640 GB	640 GB	500 GB
Model number	WD2001FASS	WD1002FAEX	WD1001FALS	WD7501AALS	WD6402AAEX	WD6401AALS	WD5001AALS
Interface	SATA 3 Gb/s	SATA 6 Gb/s	SATA 3 Gb/s	SATA 3 Gb/s	SATA 6 Gb/s	SATA 3 Gb/s	SATA 3 Gb/s
Formatted capacity	2,000,398 MB	1,000,204 MB	1,000,204 MB	750,156 MB	640,135 MB	640,135 MB	500,107 MB
User sectors per drive	3,907,029,168	1,953,525,169	1,953,525,169	1,465,149,168	1,250,263,728	1,250,263,728	976,773,168
LBA support	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SATA latching connector	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Actuator latch/auto park	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Form factor	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch	3.5-inch
RoHS compliant <sup>2</sup>	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Performance</b>							
Data transfer rate (max)							
Buffer to host	3 Gb/s	6 Gb/s	3 Gb/s	3 Gb/s	6 Gb/s	3 Gb/s	3 Gb/s
Host to/from drive (sustained)	138 MB/s	126 MB/s	106 MB/s	106 MB/s	126 MB/s	113 MB/s	113 MB/s
Cache (MB)	64	64	32	32	64	32	32
Average latency (ms)	4.2	4.2	4.2	4.2	4.2	4.2	4.2
Rotational speed (RPM)	7200	7200	7200	7200	7200	7200	7200
Average drive ready time (sec)	21	11	13	13	11	11	11
<b>Reliability/Data Integrity</b>							
Load/unload cycles <sup>3</sup>	300,000	300,000	300,000	300,000	300,000	300,000	300,000
Non-recoverable read errors per bits read	<1 in 10 <sup>14</sup>	<1 in 10 <sup>14</sup>	<1 in 10 <sup>14</sup>	<1 in 10 <sup>14</sup>	<1 in 10 <sup>14</sup>	<1 in 10 <sup>14</sup>	<1 in 10 <sup>14</sup>
Limited warranty (years) <sup>4</sup>	5	5	5	5	5	5	5
<b>Power Management</b>							
Average power requirements (W)							
Read/Write	10.7	6.8	8.4	8.4	6.8	8.3	8.3
Idle	8.2	6.1	7.8	7.8	6.1	7.7	7.7
Standby	1.3	0.7	1	1	0.7	1	1
Sleep	1.3	0.7	1	1	0.7	1	1
<b>Environmental Specifications<sup>5</sup></b>							
Temperature (°C)							
Operating	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60	0 to 60
Non-operating	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70	-40 to 70
Shock (Gs)							
Operating (2 ms, read)	30	30	30	30	30	30	30
Operating (2 ms, read/write)	65	65	65	65	65	65	65
Non-operating (2 ms)	300	300	250	250	300	300	300
Average acoustics (dBA) <sup>6</sup>							
Idle mode	29	28	24	24	28	25	25
Performance seek mode	34	33	33	33	33	29	29
Quiet seek mode	30	29	29	29	29	26	26
<b>Physical Dimensions</b>							
Height (in./mm, max)	1.028/25.4	1.028/25.4	1.028/25.4	1.028/25.4	1.028/25.4	1.028/25.4	1.028/25.4
Length (in./mm, max)	5.787/147	5.787/147	5.787/147	5.787/147	5.787/147	5.787/147	5.787/147
Width (in./mm, ± .01 in.)	4/101.6	4/101.6	4/101.6	4/101.6	4/101.6	4/101.6	4/101.6
Weight (lb./kg, ± 10%)	1.66/0.75	1.52/0.69	1.52/0.69	1.52/0.69	1.52/0.69	1.39/0.63	1.39/0.63

<sup>1</sup>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](http://www.sata-io.org) for details.

<sup>2</sup>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 European Union for electrical and electronic products. The RoHS Directive 2002/95/EC of the European Parliament, which is effective in the EU beginning July 1, 2006, aims to protect human health and the environment by restricting the use of certain hazardous substances in new equipment, and consists of restrictions on lead, mercury, cadmium, and other substances.

<sup>3</sup>Controlled unload at ambient condition

<sup>4</sup>The term of the limited warranty may vary by region. Visit [support.wdc.com/warranty](http://support.wdc.com/warranty) for details.

<sup>5</sup>No non-recoverable errors during operating tests or after non-operating tests.

<sup>6</sup>Sound power level.



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