

WD Caviar® Black™

Desktop Hard Drives



Maximum performance
for power computing

Interface

SATA 3 Gb/s

Width/Height

3.5-inch/1-inch

Rotational Speed

7200 RPM

Capacities

500 GB to 1 TB

Model Numbers

WD1001FALS
WD7501AALS
WD6401AALS
WD5001AALS

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 warranty.

Product Features

High Performance Electronics Architecture

- **Dual processor** — Twice the processing power to maximize performance.
- **32 MB cache** — Bigger, faster cache means faster performance.

Rock Solid Mechanical Architecture




- **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 and 1 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.
- **Perpendicular Magnetic Recording (PMR)** — WD Caviar Black drives employ PMR technology to achieve even greater areal density.

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 Warranty

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

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

 <p>WD Caviar® Black™ Maximum performance for power computing.</p>	 <p>WD Caviar® Blue™ Performance and reliability for everyday computing.</p>	 <p>WD Caviar® Green™ Cool, quiet, eco-friendly.</p>
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WD Caviar Black

Desktop Hard Drives

Specifications ¹	1 TB	750 GB	640 GB	500 GB
Model number	WD1001FALS	WD7501AALS	WD6401AALS	WD5001AALS
Interface	SATA 3 Gb/s	SATA 3 Gb/s	SATA 3 Gb/s	SATA 3 Gb/s
Formatted capacity	1,000,204 MB	750,156 MB	640,135 MB	500,107 MB
User sectors per drive	1,953,525,169	1,465,149,168	1,250,263,728	976,773,168
LBA support	Yes	Yes	Yes	Yes
SATA latching connector	Yes	Yes	Yes	Yes
Actuator latch/auto park	Yes	Yes	Yes	Yes
Form factor	3.5-inch	3.5-inch	3.5-inch	3.5-inch
RoHS compliant ²	Yes	Yes	Yes	Yes
Performance				
Data transfer rate (max)				
Buffer to host	3 Gb/s	3 Gb/s	3 Gb/s	3 Gb/s
Host to/from drive (sustained)	106 MB/s	106 MB/s	113 MB/s	113 MB/s
Cache (MB)	32	32	32	32
Average latency (ms)	4.2	4.2	4.2	4.2
Rotational speed (RPM)	7200	7200	7200	7200
Average drive ready time (sec)	13	13	11	11
Configuration/Organization				
Heads/disks	6/3	5/3	4/2	4/2
Bytes per sector (STD)	512	512	512	512
Reliability/Data Integrity				
Load/unload cycles ³	300,000	300,000	300,000	300,000
Non-recoverable read errors per bits read	<1 in 10 ¹⁵	<1 in 10 ¹⁵	<1 in 10 ¹⁴	<1 in 10 ¹⁴
Limited warranty (years) ⁴	5	5	5	5
Power Management				
12VDC ±10% (A, peak)	2.075	2.075	1.375	1.375
Average power requirements (W)				
Read/Write	8.4	8.4	8.3	8.3
Idle	7.8	7.8	7.7	7.7
Standby	1	1	1	1
Sleep	1	1	1	1
Environmental Specifications⁵				
Temperature (°C)				
Operating	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
Shock (Gs)				
Operating (2 ms, read)	30	30	30	30
Operating (2 ms, read/write)	65	65	65	65
Non-operating (2 ms)	250	250	300	300
Average acoustics (dBA) ⁶				
Idle mode	24	24	25	25
Performance seek mode	33	33	29	29
Quiet seek mode	29	29	26	26
Physical Dimensions				
Height (in./mm, max)	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
Width (in./mm, ± .01 in.)	4/101.6	4/101.6	4/101.6	4/101.6
Weight (lb./kg, ± 10%)	1.52/0.69	1.52/0.69	1.39/0.63	1.39/0.63



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2879-701276-A02 Feb 2009

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 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.

² WD products manufactured and sold worldwide after August 1, 2005, 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.

³ Controlled unload at ambient condition.

⁴ The term of the limited warranty may vary by region. Visit support.wdc.com/warranty for details.

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

⁶ Sound power level.