

Western Digital

Ultrastar[®]

SATA Series Hard Drives

Drive to endure.

Ultrastar[®] hard drives feature up to 10 times the workload rating¹ of desktop drives and employ advanced technologies for enterprise-class reliability, power efficiency and performance. Designed from the ground up to be an ultra-robust storage device, Ultrastar drives are the perfect choice for your business.



INTERFACE

SATA 6Gb/s

FORM FACTOR / HEIGHT

3.5-inch / 1-inch

PERFORMANCE CLASS

7200 RPM Class

CAPACITIES

1TB to 14TB

DATA SHEET

Best-fit Applications

- Enterprise servers and storage systems
- Business-critical applications needing reliable, robust high-capacity storage
- Surveillance analytics and industrial applications

Ultrastar Advantage

The Ultrastar family delivers a long-standing tradition of reliability leadership with MTBF ratings of at least 2M hours and a 5-year limited warranty.

Ultrastar quality, capacity, power efficiency, and world-class technical support and service help provide customers with a lower total cost of ownership.

Western Digital is dedicated to providing a complete portfolio of hard drives to create environments for data to thrive.

Product Benefits

High Workload Rating

Delivering dependable performance to any storage environment, Ultrastar hard drives are designed with a workload rating up to 550TB per year¹, among the highest of any 3.5-inch hard drive.

HelioSeal[®] Technology

Featured in over 20 million shipped Western Digital hard drives², HelioSeal technology enables the highest capacities and less turbulence on large storage arrays. And now on its fifth-generation design, HelioSeal technology is field-tested and proven to deliver high capacity, reliability, and power efficiency you can trust.

Enterprise-class Storage to Rely On

With up to 2.5 million hours MTBF rating, Ultrastar hard drives deliver reliability and durability, are built for yearly operation (24x7x365) within the most demanding storage environments and are backed with a 5-year limited warranty.

Compatibility Testing

All Ultrastar hard drives are extensively tested across a variety of popular OEM storage systems, SATA controllers, and host bus adapters to ensure ease of integration for a plug and play solution.

Vibration Protection

Enhanced Rotational Vibration Safeguard (RVS) technology uses sophisticated electronics to monitor the drive and correct linear and rotational vibrations in real time for improved performance versus traditional desktop drives in high vibration environments.

Dual-stage Actuator Technology

Ultrastar drives feature a dual-stage actuator head positioning system for a high degree of accuracy. The primary stage provides coarse displacement while the secondary stage uses piezoelectric motion to fine tune the head positioning to a higher degree of precision.

Dynamic Fly-height Technology

Each read-write head's fly height is adjusted in real time to ensure consistent performance for reduced errors and optimized reliability.

7200 RPM Class

This 7200 RPM-class hard drive delivers the fastest performance with the highest workload rating of any high-capacity drive from Western Digital. Ensure you have the most capable hard drive regardless of the application with Ultrastar hard drives.

Ultrastar® SATA Series

3.5-inch Hard Drives

Specifications	HelioSeal Technology DC HC500 Series			DC HC300 Series			DC HA200 Series	
	14TB	12TB	10TB	8TB	6TB	4TB	2TB	1TB
512 emulation (512e) order number	0F31284	0F30146	0F27606	0B36404	0B36039	--	--	--
512 native (512n) order number	--	--	--	--	--	0B35950	1W10002	1W10001
Equivalent WD Gold™ Model #	--	WD121KRYZ / WD121VRYZ	WD101KRYZ / WD101VRYZ	WD8003FRYZ / WD8003VRYZ	WD6002FRYZ / WD6002VRYZ	WD4002FRYZ / WD4002VRYZ	WD2005FBYZ / WD2005VBYZ	WD1005FBYZ / WD1005VBYZ
Ultrastar DC family	HC530	HC520	HC510	HC320	HC310		HA210	
Capacity ³	14TB	12TB	10TB	8TB	6TB	4TB	2TB	1TB
Format: Sector size ⁴ (bytes)	512e			512e		512n	512n	512n
Interface	SATA 6Gb/s							
Native command queuing	Yes							
Form factor	3.5-inch							
RoHS compliant ⁵	Yes							
Performance								
Sustained data transfer rate ⁶ Buffer to host (max) Host to/from drive (typical)	600MB/s 267MB/s	600MB/s 255MB/s	600MB/s 249MB/s	600MB/s 255MB/s		600MB/s 233MB/s	600MB/s 200MB/s	600MB/s 184MB/s
Cache (MB) ⁷	512	256		256			128	
Performance class	7200 RPM							
Reliability/Data Integrity								
MTBF (hours) ⁸	2,500,000			2,000,000			2,000,000	
AFR (%) ⁸	0.35			0.44			0.44	
Load/unload cycles	600,000							
Error rate (non-recoverable bits read)	1 in 10 ¹⁵							
Limited warranty (years)	5							
Power Management								
Average power requirements (W) Operational ⁹ Idle ¹⁰ Power efficiency index (W/TB, Idle)	7.6 5.6 0.400	6.9 5.0 0.417	6.8 5.0 0.500	8.8 7.4 0.925	7.0 5.9 0.983	7.0 5.9 1.475	8.1 5.9 2.95	8.1 5.9 5.9
Environmental Specifications								
Shock (Gs) Operating (half-sine wave, 2ms) Non-operating (half-sine wave, 2ms)	70 300			70 300			65 300	
Acoustics (dBA) Idle Seek (average)	20 36			29 36			25 28	
Temperature (°C) Operating Non-operating	5° to 60° -40° to 70°							
Physical Dimensions								
Weight (lb/kg, ± 10%)	1.52 / 0.69	1.46 / 0.66		1.58 / 0.715			1.41 / 0.641	
Height (in/mm, max)	1.028 / 26.1							
Length (in/mm, max)	5.787 / 147							
Width (in/mm, ± 0.01 in.)	4.0 / 101.6							

1 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.

2 As of December 2017

3 One megabyte (MB) is equal to one million bytes, one gigabyte (GB) is equal to 1,000MB (one billion bytes), and one terabyte (TB) is equal to 1,000GB (one trillion bytes) when referring to storage capacity. Accessible capacity will vary from the stated capacity due to formatting, system software, and other factors.

4 512e: Advanced Format drive with 512-byte logical sectors and 4K (4096-byte) physical sectors; 512n: Native 512-byte logical and physical sectors

5 Western Digital 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.

6 MB/s is 10⁶ bytes

7 Portion of buffer capacity used for drive firmware

8 MTBF and AFR specifications are based on a sample population and are estimated by statistical measurements and acceleration algorithms under typical operating conditions for this drive model. MTBF and AFR ratings do not predict an individual drive's reliability and do not constitute a warranty.

9 8K Queue Depth = 1 @ 40 IOPS

10 Idle specification is based on use of Idle_A

Western Digital.

Information & Technical Support

www.wdc.com/ultrastar-sata
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