



WD Gold™ Enterprise Class SATA HDD

Your Data Is Gold

Customize your business's storage mix to fit your specific needs with a full portfolio of enterprise-class WD Gold™ HDDs in capacities of 1TB to 22TB¹, with OptiNAND™ technology in 20TB and 22TB. These highly reliable solutions for demanding storage environments provide up to 2.5M hours MTBF², vibration protection technology, and a low power draw thanks to HelioSeal® technology (for 12TB and above). Specifically designed for use in enterprise-class data centers and storage systems, WD Gold SATA HDDs deliver the world-class performance you expect from Western Digital® hard drives.

More Flexibility, More Freedom

WD Gold™ lets you build out your storage your way with a full portfolio of SATA HDDs from 1TB to 22TB¹, engineered for heavy application workloads and designed to handle workloads up to 550TB³ per year.

Enhanced Reliability

With up to 2.5M hours MTBF², WD Gold™ hard drives deliver enhanced levels of dependability and durability.

Vibration Protection

WD Gold™ drives have sophisticated monitoring electronics that help correct linear and rotational vibrations in real time using enhanced vibration protection technology for improved performance in high-vibration environments.

Plays Well with Others

Specifically designed for use in enterprise-grade storage systems and data centers, WD Gold™ HDDs are broadly compatible with major enterprise operating systems.

Scale Your Business

WD Gold™ drives are available in an unsurpassed, industry-leading 22TB¹ CMR capacity utilizing the OptiNAND™ technology's capacity-enabling feature.

Helps Protect Your Data

The innovative ArmorCache™ feature (22TB only) provides enterprise power loss protection of your data in write-cache enabled (WCE) mode while increasing performance in write-cache disabled (WCD) mode.

Product Highlights

- Optimize your storage for your business with a full portfolio of enterprise-class WD Gold™ HDDs in capacities up to 22TB¹
- Quality and reliability with up to 2.5M hours MTBF² to help you store your data with confidence
- Specifically designed for use in enterprise-class storage systems and data centers
- Improve performance with our vibration protection technology
- HelioSeal® technology delivers high capacities with low power draw (12TB & up)
- Get peace of mind with a 5-year limited warranty

Specifications

| | 22TB ¹ | 20TB ¹ | 20TB ¹ | 18TB ¹ | 16TB ¹ | 14TB ¹ | 12TB ¹ |
|---|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Model Number | WD221KRYZ | WD202KRYZ | WD201KRYZ | WD181KRYZ | WD161KRYZ | WD141KRYZ | WD121KRYZ |
| Form factor | 3.5-inch | 3.5-inch | 3.5-inch | 3.5-inch | 3.5-inch | 3.5-inch | 3.5-inch |
| Interface | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s |
| 512n / 512e user sectors per drive ⁴ | 512e | 512e | 512e | 512e | 512e | 512e | 512e |
| Formatted capacity ¹ | 22TB | 20TB | 20TB | 18TB | 16TB | 14TB | 12TB |
| OptiNAND™ technology | Yes | Yes | Yes | No | No | No | No |
| RoHS compliant ⁵ | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Performance | | | | | | | |
| Data transfer rate ⁶ (max Sustained) | 291MB/s | 291MB/s | 291MB/s | 269MB/s | 262MB/s | 267MB/s | 255MB/s |
| RPM | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 |
| Cache ^{1,7} | 512MB | 512MB | 512MB | 512MB | 512MB | 512MB | 256MB |
| Power Management | | | | | | | |
| Average power requirements (W) | | | | | | | |
| Operational ⁸ | 7.1W | 6.9W | 7.0W | 6.5W | 6.5W | 6.0W | 6.9W |
| Idle ⁹ | 5.7W | 5.8W | 6.0W | 5.6W | 5.6W | 5.5W | 5.0W |
| Power efficiency index (W/TB, idle) | 0.26 | 0.29 | 0.30 | 0.31 | 0.35 | 0.40 | 0.40 |
| Reliability | | | | | | | |
| MTBF (hours, projected) ² | 2,500,000 | 2,500,000 | 2,500,000 | 2,500,000 | 2,500,000 | 2,500,000 | 2,500,000 |
| Annualized Failure Rate ² (AFR, %) | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 | 0.35 |
| Limited Warranty | 5 years | 5 years | 5 years | 5 years | 5 years | 5 years | 5 years |
| Environmental | | | | | | | |
| Operating temperature ¹⁰ | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C |
| Non-operating temperature | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C |
| Shock (Read/Write) Operating (half-sine wave, 2ms) | 40G/40G | 50G/50G | 50G/50G | 50G/50G | 50G/50G | 70G/70G | 70G/70G |
| Non-operating (half-sine wave, 2ms) | 200G | 250G | 250G | 250G | 250G | 300G | 300G |
| Acoustics (average) | | | | | | | |
| Idle Mode | 20 dBA | 20 dBA | 20 dBA | 20 dBA | 20 dBA | 20 dBA | 20 dBA |
| Seek Mode | 32 dBA | 32 dBA | 32 dBA | 36 dBA | 36 dBA | 36 dBA | 36 dBA |
| Physical Dimensions | | | | | | | |
| Height (max) | 26.1mm | 26.1mm | 26.1mm | 26.1mm | 26.1mm | 26.1mm | 26.1mm |
| Length (max) | 147.0mm | 147.0mm | 147.0mm | 147.0mm | 147.0mm | 147.0mm | 147.0mm |
| Width (± .01 in.) | 101.6mm | 101.6mm | 101.6mm | 101.6mm | 101.6mm | 101.6mm | 101.6mm |
| Weight | 1.47 lb (.67 kg) ± 10% | 1.52 lb (.69 kg) ± 10% | 1.52 lb (.69 kg) ± 10% | 1.52 lb (.69 kg) ± 10% | 1.52 lb (.69 kg) ± 10% | 1.52 lb (.69 kg) ± 10% | 1.46 lb (.66 kg) ± 10% |

Specifications

| | 10TB ¹ | 8TB ¹ | 6TB ¹ | 4TB ¹ | 2TB ¹ | 1TB ¹ |
|---|----------------------------|-----------------------------|-----------------------------|-----------------------------|----------------------------|----------------------------|
| Model Number | WD102KRYZ | WD8004FRYZ | WD6003FRYZ | WD4003FRYZ | WD2005FBYZ | WD1005FBYZ |
| Form factor | 3.5-inch | 3.5-inch | 3.5-inch | 3.5-inch | 3.5-inch | 3.5-inch |
| Interface | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s | SATA 6 Gb/s |
| 512n / 512e user sectors per drive ⁴ | 512e | 512e | 512e | 512e | 512n | 512n |
| Formatted capacity ¹ | 10TB | 8TB | 6TB | 4TB | 2TB | 1TB |
| OptiNAND™ technology | No | No | No | No | No | No |
| RoHS compliant ⁵ | Yes | Yes | Yes | Yes | Yes | Yes |
| Performance | | | | | | |
| Data Transfer Rate ⁶ (max Sustained) | 262MB/s | 255MB/s | 255MB/s | 255MB/s | 200MB/s | 184MB/s |
| RPM | 7200 | 7200 | 7200 | 7200 | 7200 | 7200 |
| Cache ^{1,7} | 256MB | 256MB | 256MB | 256MB | 128MB | 128MB |
| Power Management | | | | | | |
| Average power requirements (W) | | | | | | |
| Operational ⁸ | 9.2W | 8.8W | 7.0W | 7.0W | 8.1W | 8.1W |
| Idle ⁹ | 8.0W | 7.4W | 5.9W | 5.9W | 5.9W | 5.9W |
| Power efficiency index (W/TB, idle) | 0.80 | 0.90 | 1.0 | 1.5 | 3.0 | 5.9 |
| Reliability | | | | | | |
| MTBF (hours, projected) ² | 2,000,000 | 2,000,000 | 2,000,000 | 2,000,000 | 2,000,000 | 2,000,000 |
| Annualized Failure Rate ² (AFR, %) | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 | 0.44 |
| Limited warranty | 5 years | 5 years | 5 years | 5 years | 5 years | 5 years |
| Environmental | | | | | | |
| Operating temperature ¹⁰ | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C | 5°C to 60°C |
| Non-operating temperature | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C | -40°C to 70°C |
| Shock (Read/Write) Operating (half-sine wave, 2ms) | 70G/50G | 70G/70G | 70G/70G | 70G/70G | 65G/65G | 65G/65G |
| Non-operating (half-sine wave, 2ms) | 250G | 300G | 300G | 300G | 300G | 300G |
| Acoustics (average) | | | | | | |
| Idle Mode | 34 dBA | 29 dBA | 29 dBA | 29 dBA | 25 dBA | 25 dBA |
| Seek Mode | 38 dBA | 36 dBA | 36 dBA | 36 dBA | 28 dBA | 28 dBA |
| Physical Dimensions | | | | | | |
| Height (max) | 26.1mm | 26.1mm | 26.1mm | 26.1mm | 26.1mm | 26.1mm |
| Length (max) | 147.0mm | 147.0mm | 147.0mm | 147.0mm | 147.0mm | 147.0mm |
| Width (± .01 in.) | 101.6mm | 101.6mm | 101.6mm | 101.6mm | 101.6mm | 101.6mm |
| Weight | 1.65 lb. (.75 kg) ± 10% | 1.58 lb. (.715 kg) ± 10% | 1.58 lb. (.715 kg) ± 10% | 1.58 lb. (.715 kg) ± 10% | 1.41 lb. (.64 kg) ± 10% | 1.41 lb. (.64 kg) ± 10% |

¹ 1MB = 1 million bytes, 1GB = 1 billion bytes, and 1TB = 1 trillion bytes. Actual user capacity may be less depending on operating environment.

² Projected values for model number WD221KRYZ and WD202KRYZ. Final MTBF and AFR specifications will be based on a sample population and are estimated by statistical measurements and acceleration algorithms under typical operating conditions, typical workload and 40°C device-reported temperature. Derating of MTBF and AFR will occur above these parameters, up to 550TB/year and 60°C (device reported temperature). MTBF and AFR ratings do not predict an individual drive's reliability and do not constitute a warranty.

³ 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.

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 This drive is in compliance with the European Union Directive 2011/65/EU and Directive (EU) 2015/863 on the restriction of the use of certain hazardous substances (RoHS) in electrical and electronic equipment.

⁶ 1 MB/s = 1 million bytes per second. Based on internal testing; performance may vary depending upon host device, usage conditions, drive capacity, logical block address (LBA), and other factors.

⁷ Portion of buffer capacity used for drive firmware.

⁸ Random RW 50/50 8KB QD=1 @40 IOPS.

⁹ Based on use of Idle_A.

¹⁰ 5°C ambient temperature, 60°C device reported temperature.

