

## Does Temperature Affect Your Hard Drive Data and Life Span?



When your car is overheated, it is likely that there will be consequences as the motor system may not function correctly, or a critical part is damaged. This is the same issue with computers and their components. For example, hard drives are a critical part of your computer – it holds all your data and the computer cannot function without it. If it gets too hot, it can cause various stability issues, reduce performance and more importantly, **cause hard drive failures**. This can be a very serious problem, and if you do not have any form of backup of your critical data, you will be unlikely to recover that information. According to National Instruments and based on test and research conducted, a 5C increase in temperature can reduce the life of a hard drive by up to 2 years. Below are a couple examples others reputable publications that have concluded of what can happen to your hard drive. This will

show you how the MB080 Blizzard 3.5" HDD enclosure can keep your drive cooled, in optimal operating conditions and in the end, your data in good hands.

### How temperature affects your hard drive life span

According to National Instruments - *“The condition that has the biggest impact on the life of a hard drive is temperature. Heat decreases the life of the hard drive head. A 5 °C increase in temperature could reduce the life of a hard drive by up to two years. Heat also reduces the fly height of the hard drive head, which can cause the head to make contact with and damage the media. If your system will be operated in an environment with a minimum ambient temperature less than 5 °C and/or a maximum ambient temperature greater than 50 °C, you must select a hard drive with an extended operating temperature range. These hard drives include components designed for reliability in low and high temperature extremes.”* - [Ni.com](http://Ni.com)

The screenshot shows the CrystalDiskInfo 2.7.4 interface. The health status is 'Caution' with a temperature of 63°C. The drive is an ST33000651AS 3000.5 GB. The interface includes a menu bar (File, Edit, Function, Theme, Disk, Help, Language), a status bar (Good, Caution, 63°C), and a table of SMART attributes.

ID	Attribute Name	Current	Worst	Threshold	Raw Values
01	Read Error Rate	78	75	6	25FF08054307
03	Spin-Up Time	89	85	0	000000000000
04	Start/Stop Count	100	100	20	00000000006D
05	Reallocated Sectors Count	100	100	36	000000000000
07	Seek Error Rate	100	253	30	00020008E333
09	Power-On Hours	100	100	0	000000000021
0A	Spin Retry Count	100	100	97	000000000000
0C	Device Power Cycle Count	100	100	20	000000000052
B7	Unknown	100	100	0	000000000000
B8	Unknown	100	100	99	000000000000
BB	Vendor Specific	1	1	0	0000000025FF
BC	Unknown	100	99	0	000400040004

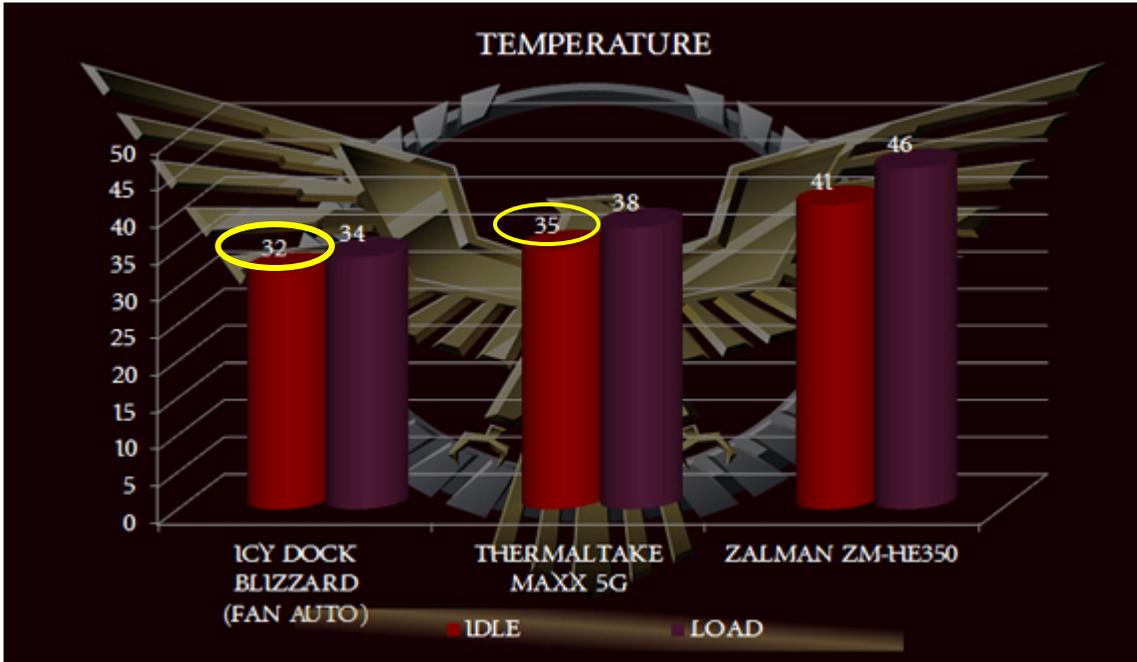
### How temperature affects your Hard drive performance

According to Anandtech.com - *“Hard drives aren’t fond of very high temperatures; it tends to reduce their lifespan. But in this case, the temperatures got high enough that performance went down as well. Over a USB 3.0 connection you can get > 130MB/s write speed to the drive in the 3TB GoFlex Desk. Once the drive temperature hit the mid-60s, sequential write speed dropped to ~50MB/s. The drop in write speed has to do with the increased number of errors while operating at high temperatures. I turned the drive off, let it cool*

*and turned it back on, which restored drive write speeds to 130MB/s. Keep writing to the drive long enough in this reduced performance state and you’ll eventually see errors. I ran a sequential read/write test over night (HDTach, full test) and by the morning the drive was responding at less than 1MB/s.”* - [Anandtech.com](http://Anandtech.com)

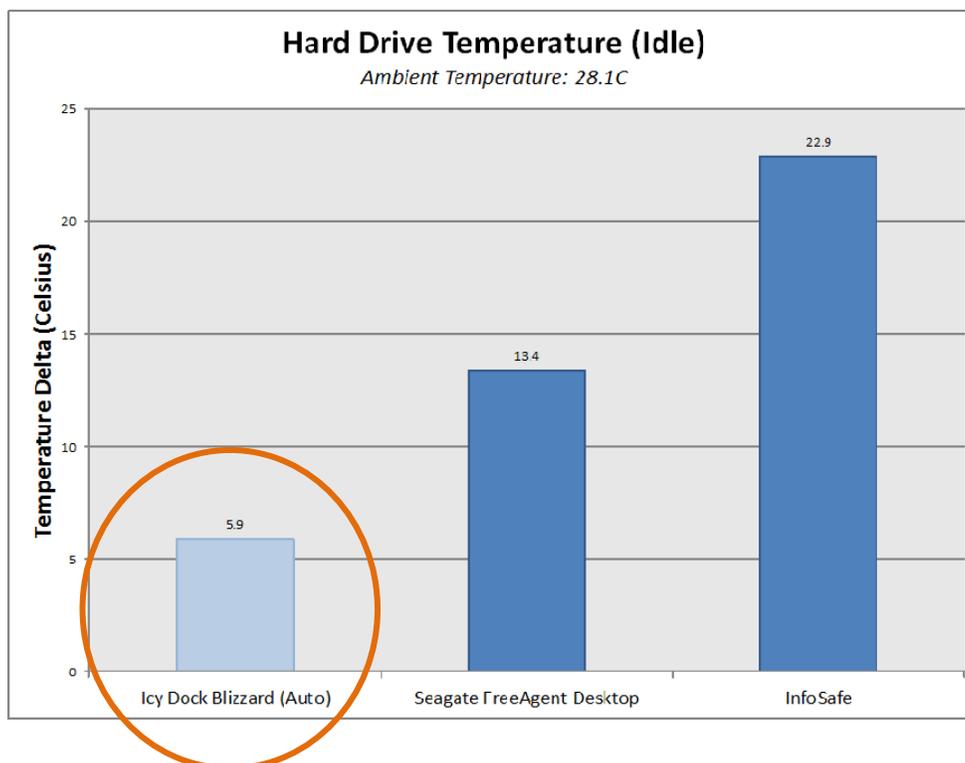
## How the Blizzard Compare to Other Actively Cooled Hard Drive Enclosures?

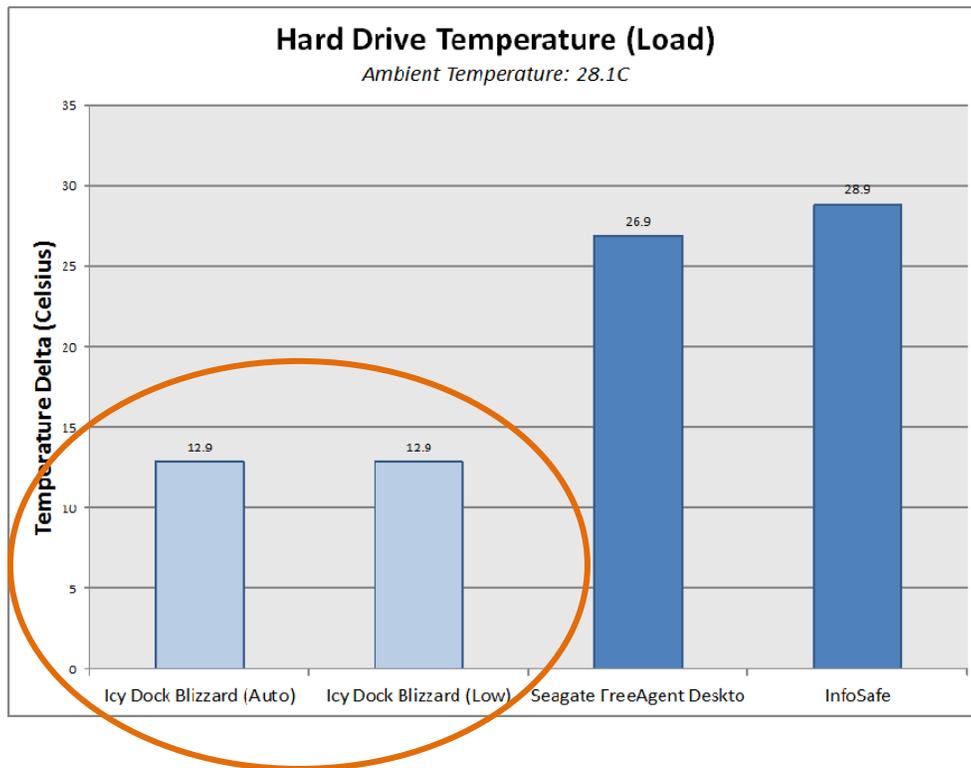
The Blizzard's cooling philosophy is in the uniquely designed, actively cooled single 80mm fan. The front cooling fan placement **cools all sides** of the hard drive consistently. Also, a built-in fan controller allows one to have the cooling fan at low, high, or auto as needed. The results known product review publications show concluded that the MB080's single fan design beats the competitor's dual 80mm fan enclosure in hard drive temperature comparisons, and proves the placement of the cooling fan of the MB080 series provides best cooling efficiency.



According to Hitechlegion - "We tested idle and load temperatures of our test drive in room temp of 20 degrees Celsius. Temperature readings were reported using AIDA64 at idle and max temps during a 50GB [file transfer](#). **The Icy Dock Blizzard was compared to the Thermaltake Max 5G which is**

**actively cooled with dual 80mm fans, as well as the passively cooled Zalman ZM-HE350. Temperatures taken using Auto Setting. Total Transfer time 90 mins."** – [Hitechlegion.com](http://Hitechlegion.com)





According to an Overclock member - “With respect to its key metric, the Blizzard trounces the competition in keeping its drive cool. In fact, I actually had to run the tests between the Blizzard and the InfoSafe twice because the first drive I tested within the InfoSafe (a Seagate 7200.10 1TB 3.5” drive) failed after I ran a battery of tests on it. I can’t prove that heat was the cause of death, but at 125F at last check, it probably didn’t help. **The Blizzard was able to keep the test drive very close to ambient and for that it receives top marks.**” – [Overclock.net](http://www.overclock.net)

### What Do We Think?

It’s very easy to see that using an actively cooled solution is very important in keeping your hard drive cooled. So, now that we know an actively cooled enclosure is needed to protect and prevent heat issues to your hard drive, how do we determine the best of the actively cooled enclosures on the market? From the previous images, Hi Tech Legion has conducted tests using a similar type actively cooled enclosure versus the Blizzard. The results show all that is needed to be said about what the differences are. If you want to purchase the best actively cooling solution to protect your hard drive from failure, look no further than the Icy Dock MB080 Blizzard series enclosure.

#### Reference Material:

- <http://www.hard-drive-help.com/hard-drive-temperature.html>
- <http://www.hdsentinel.com/faq.php>
- <http://www.hitechlegion.com/reviews/storage/external/29615-icy-dock-blizzard?start=9>
- <http://www.anandtech.com/Show/Index/3858?cPage=3&all=False&sort=0&page=7&slug=the-worlds-first-3tb-hdd-seagate-goflex-desk-3tb-review>
- <http://www.overclock.net/products/icy-dock-blizzard-mb080u3s-1sb-black-external-enclosure/reviews/5284>