

Differences Between CD DVD Media

Even though both CD and DVD disks have the same media size and shape, the things they have in common ends there. There are many different things between the two, such as what they hold and how much they hold.

Data pits and lasers

A disc has microscopic grooves that will move along in a spiral around the disc. CDs and DVDs both have these grooves, with laser beams applied to scan these very grooves.

As you may know, digital information is represented in ones and zeroes. Inside of these discs, very tiny reflective bumps known as lands and non reflective holes known as pits, which can be found beside the grooves, reflect both the ones and the zeroes of digital information.

By reducing the wave length of the laser to 625nm or more infrared light, DVD technology has managed to write in smaller pits when compared to the standard technology of CD. This will allow for a greater amount of data per track on the DVD. The minimum length allowed for a pit in a single layer DVD-R is .4 micron, which is obviously more than the .0834 micron that a CD offers.

The tracks of a DVD are narrower as well, which allows for more tracks per disc, which also translates into more capacity than a CD. The average single layer DVD holds 4.5 GB of data, while a CD holds a mere 700 MB.

Layers

As stated above, a DVD has smaller pits and the lasers need to focus on them. This is actually achieved by using a thinner plastic substrate than in a CD, which means that the laser needs to pass through a thinner layer, with less

depth to reach the pits. It's this reduction in thickness that's responsible for the discs that were only 0.6mm thickness - which is half that of a CD.

Data access speed

DVDs will access data at a much faster rate than a CD can. The average 32X CD-ROM drive reads data at 4MB a second, while a 1X DVD drive reads at 1.38MB a second. This is even faster than an 8X CD drive.

Universal data format

The recording formats of CDs and DVDs are quite different, as DVDs use UDF, or the Universal Data Format. This format allows data, video, audio, or even a combination of all three to be stored in a single file structure. The advantage to this is any file can be accessed by any drive, computer, or even consumer video. CDs on the other hand aren't compatible with this format.

(word count 427)

PPPPP