

Hard Disk Drive (HDD)

Platter (aluminum coated with a thin magnetic layer)

- A circular hard surface
- Data is stored persistently by inducing magnetic changes to it
- Each platter has 2 sides, each of which is called a surface

Spindle

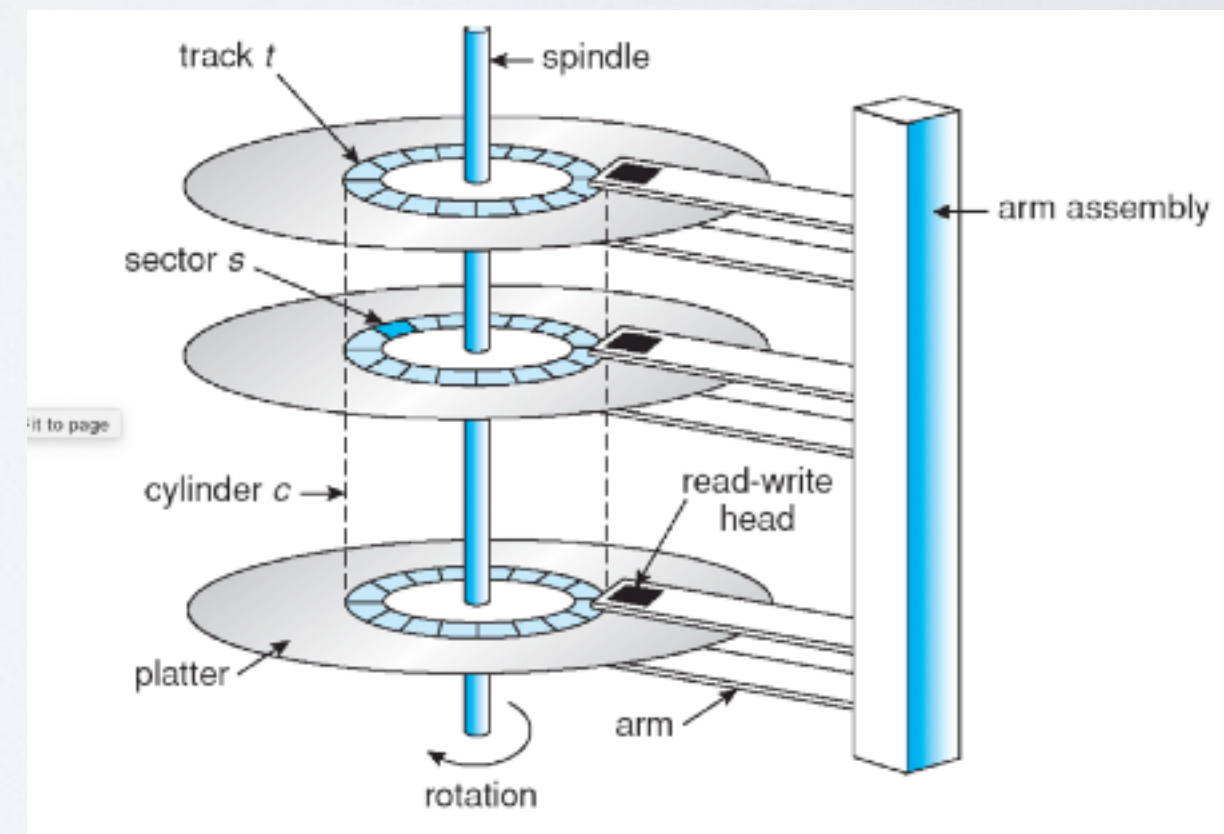
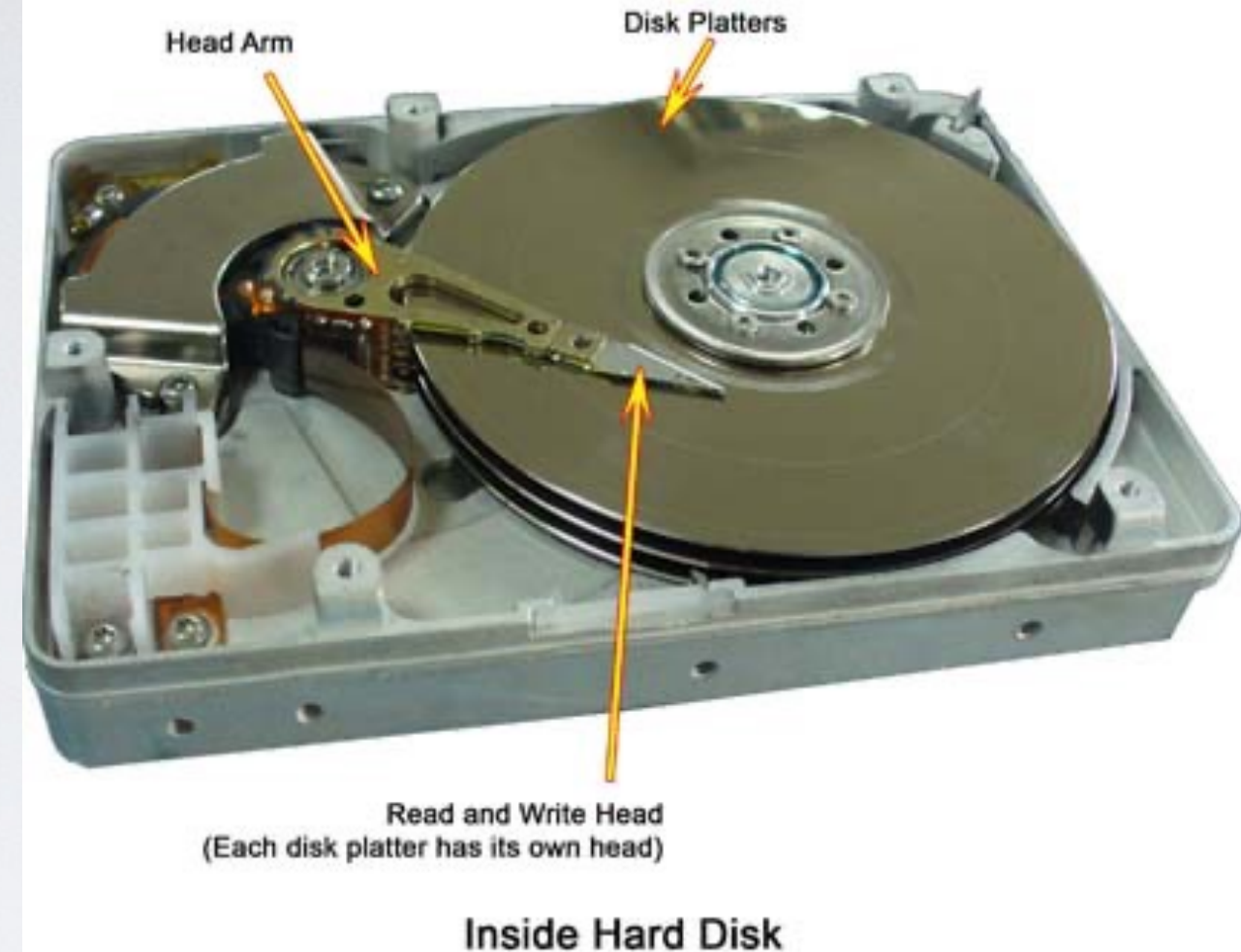
- Spindle is connected to a motor that spins the platters around
- The rate of rotations is measured in RPM (Rotations Per Minute)
Typical modern values : 7,200 RPM to 15,000 RPM

Track

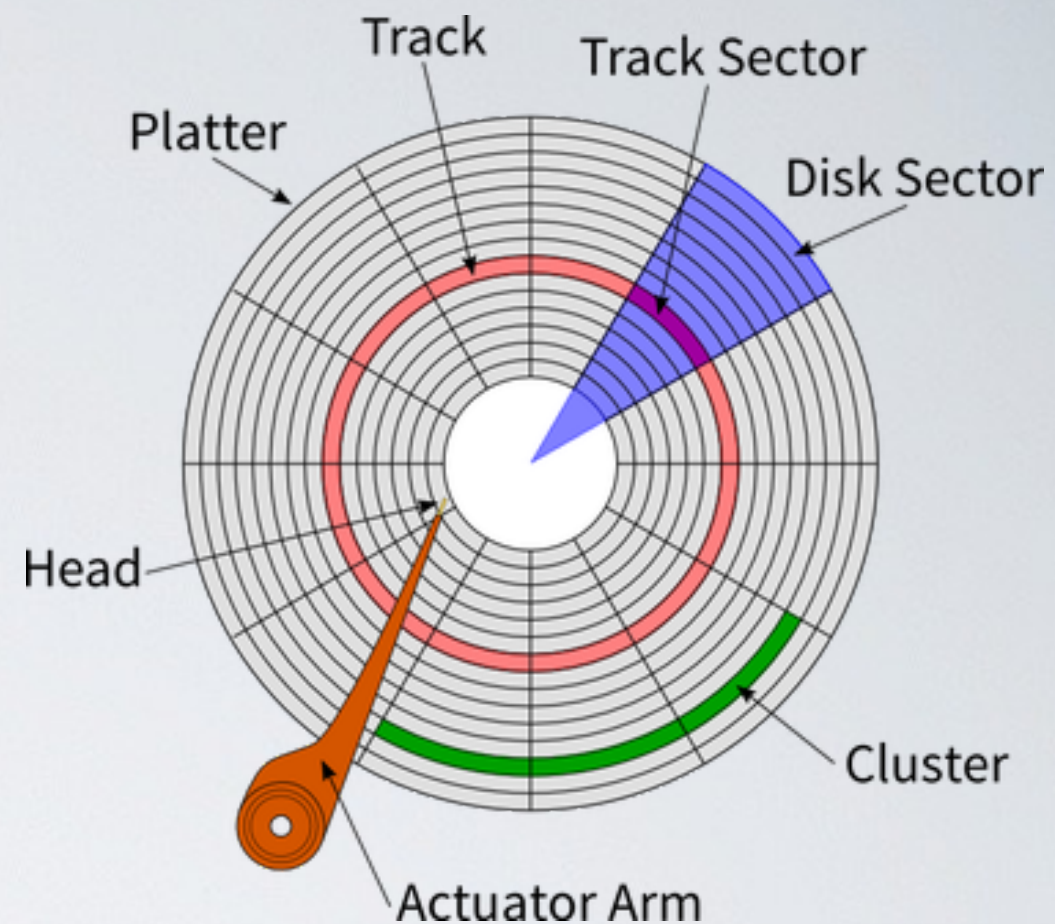
- Concentric circles of sectors
- Data is encoded on each surface in a track
- A single surface contains many thousands and thousands of tracks

Cylinder

- A stack of tracks of fixed radius
- Heads record and sense data along cylinders
- Generally only one head active at a time



HDD Interface



- ➡ Disk interface presents linear array of sectors
 - Historically 512 Bytes but 4 KiB in "advanced format" disks
 - Written atomically (even if there is a power failure)
- ✓ Disk maps logical sector #s to physical sectors
- ✓ OS doesn't know logical to physical sector mapping