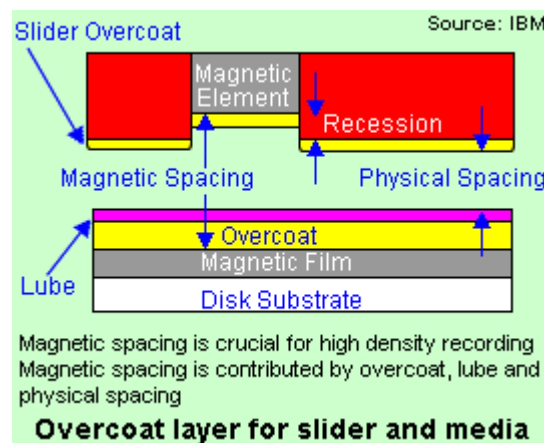


# Data Storage

## Overcoat layer slider and media

The increasing use of servers and personal computers in recent years has led to massive demand for hard disk drives, and their market volume is expected to continue to grow rapidly.

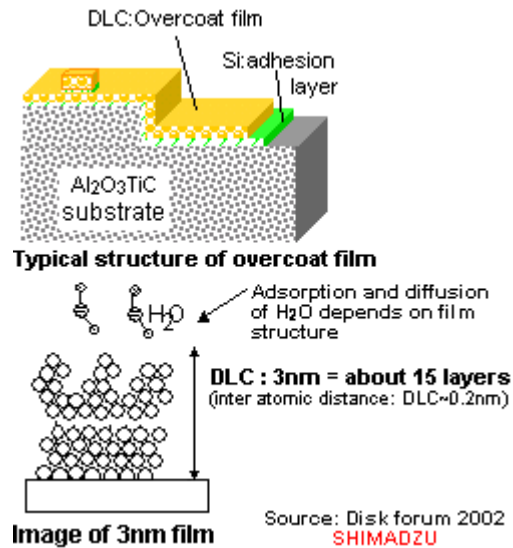
Head technology is a major element in the race to develop smaller hard disk drives with higher capacities. In order to achieve high recording density, it is imperative that the head be very close to the medium. The minimum flying gap limitation between the slider head and the rotating magnetic recording disk will reach a bottle-neck in the next 5 ~ 10 years. Thin-film heads will have to scale to such a trend, and the ta-C film produced by FCVA technology is likely to become a prominent process in their manufacture. It can be produced at ultra-thin thickness ( $<30\text{\AA}$ ) with superior corrosion / wear resistance and excellent surface morphology.



## Requirements for overcoat film GMR head

### Requirements:

- Total (Si/DLC) thickness:  $< 3\text{nm}$
- Corrosion resistance
- Dense and hard
- Wear resistance
- Productivity
- Deposition area: 8"
- Uniformity / Repeatability:  $< \pm 5\%$

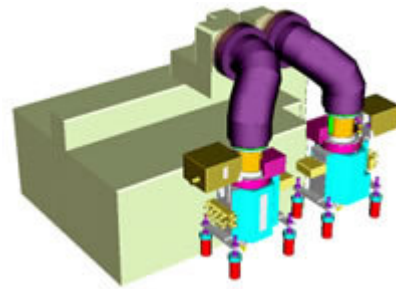


## FS Series



**FS1**

on Shimadzu DLC-MR3CA



**FS2**

on Media coating system

- GMR slider head application
- Exchangeable cluster tool
- Uniformity of better than  $\pm 5\%$  with deposition area of up to  $\varnothing 8''$

- Media source application
- Up to 550 wafer/hour
- Deposition rate up to  $10\text{\AA}/\text{s}$  on disk up to  $3.5''$

## Technical performance

- ta-C has higher  $\text{sp}^3$  content than DLC
- ta-C has superior corrosion resistance to DLC
- FCVA coated ta-C has lesser pin holes compare with CVD coated DLC while the film thickness drops more than 50%
- FCVA deposited ta-C has higher hardness and Elastic modulus compare with ECR-CVD and IBD deposited DLC

