

7.2

- Penny (1 cent) : Dia = 19.05 mm , Thick = 1.55 mm

- Nickel (5 cent) : Dia = 21.21 mm , Thick = 1.95 mm

- Quarter (25 cent) : Dia = 24.26 mm , Thick = 1.75 mm

$$AR \text{ (Aspect Ratio)} = \frac{\text{Dia}}{\text{Thick}}$$

$$AR \text{ (Penny)} = 12.29$$

$$AR \text{ (Nickel)} = 10.88$$

$$AR \text{ (Quarter)} = 13.86$$

→ ∴ AR

Quarter > Penny > Nickel

7.3 Shape factors H/D (Figure 7.1 vs π)
 $(\phi_A, \phi_V, \phi_A/\phi_V)$ coin.

i) Figure 7.1 coin, coin의 경우,

$$\left(\begin{array}{l} \phi_A = 1.86 \\ \phi_V = 0.072 \\ \phi_A/\phi_V = 25.9 \end{array} \right)$$

ii) π (Sphere)의 경우,



$$\begin{aligned} \text{a) } \phi_A &= \frac{A}{\chi^2} \\ &= \frac{\pi \chi^2}{\chi^2} = \pi \doteq 3.14 \end{aligned}$$

$$\text{b) } \phi_V = \frac{V}{\chi^3} = \frac{\frac{\pi}{6} \chi^3}{\chi^3} = \frac{\pi}{6} \doteq 0.524$$

$$\text{c) } \phi_A/\phi_V \doteq 6$$

$\therefore \phi_A \Rightarrow$ coin < sphere

$\left(\phi_V \Rightarrow \text{coin} < \text{sphere} \right)$

$\left(\phi_A/\phi_V \Rightarrow \text{coin} > \text{sphere} \right)$

\Uparrow

이러한 각각의 shape factor가 의미하는 것은 무엇!

1.4

i) For ~~Cube~~ Sphere; $\left(\begin{array}{l} \phi_A = \pi \\ \phi_V = \frac{\pi}{6} \end{array} \right) \therefore \phi_A / \phi_V = 6$

ii) For cube; $\left(\begin{array}{l} \phi_A = 6 \\ \phi_V = 1 \end{array} \right) \therefore \phi_A / \phi_V = 6$

\therefore cube et sphere el ϕ_A / ϕ_V 는 같다.