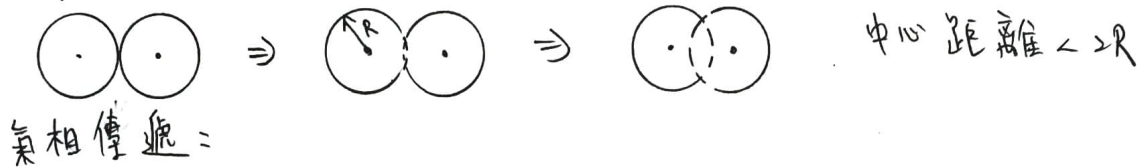


# 機製 2<sup>nd</sup> 期中

1. 金屬由球磨機(圓柱狀, 會滾動的機器)一端進入, 經由滾動壓碎脆性和延性較小的金屬, 形成粉末, 再從另一端流出。

2. 固態鍵結:



中心距離  $< 2R$



四、

1. 長軸  $= 6 \times (1 + 30\%) = 7.8 \text{ mm}$

短軸  $= 6 \times (1 - \frac{30\%}{2}) = 5.1 \text{ mm}$

圖  $\Rightarrow$  單軸拉伸  
 $R=1$ , 斜率  $= -2$

$\Rightarrow$  thickness  $= 2 \times (1 - \frac{30\%}{2}) = 1.7 \text{ mm}$

$A = \pi ab = \pi \times \frac{7.8}{2} \times \frac{5.1}{2} = 31.243 \text{ mm}^2$

2、

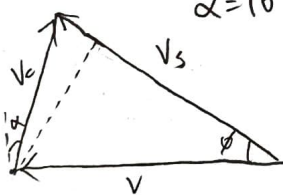
$8.96 \times 90\% = 8.064$

$8.064 \times (0.9)^3 = 5.879$  圖 copper powder, fine  $\rightarrow 300 \text{ MPa}$

$A = [(\frac{90 \times 10^{-3}}{2})^2 - (\frac{15 \times 10^{-3}}{2})^2] \times \pi = 0.006185 \text{ m}^2$

$F = PA = 300 \times 0.006185 = 1.8555 \text{ MN} \#$

3.  $t_0 = 0.13 \text{ mm}$ ,  $V = 120 \text{ m/min}$ ,  $W = 6 \text{ mm}$ ,  $t_c = 0.23 \text{ mm}$ ,  $F_c = 500 \text{ N}$ ,  $F_t = 200 \text{ N}$ ,  $r = \frac{t_0}{t_c} = \frac{V_c}{V}$   
 $\alpha = 10^\circ$



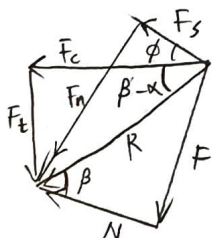
$\frac{FV_c}{F_c V} = \frac{FV}{F_c} = \frac{283.766 \times 0.565}{500} = 0.32 = 32\% \#$

$r = \frac{t_0}{t_c} = \frac{0.13}{0.23} = 0.565$

$F = R \sin \beta = 538.5 \sin(31.8^\circ) = 283.766$

$F_c = R \cos(\beta - \alpha) = 500 = 538.5 \cos(\beta - 10^\circ) \Rightarrow \beta = 31.8^\circ$

$R = \sqrt{F_c^2 + F_t^2} = \sqrt{500^2 + 200^2} = 538.5$



4、

$V T^n = C$

$V \sqrt{T_1} = 120 = 0.5 V \sqrt{T_2}$

$\Rightarrow \sqrt{\frac{T_2}{T_1}} = \frac{V}{0.5V} = 2$

$\Rightarrow \frac{T_2}{T_1} = 4 \Rightarrow$  提升  $300\% \#$