











$$\text{動作脈波數 } A = \frac{L}{P_B} \times \frac{360^\circ}{\theta_s} = \frac{30^\circ}{360^\circ} \times \frac{360^\circ}{0.03^\circ} = 1000 \text{個... pulse}$$

設加減速時間為 25% = 0.4 sec × 0.25 = 0.1 sec,  $f_1 = 500 \text{ pps}$

$$f_2 = \frac{A - f_1 \times t_1}{t_0 - t_1} = \frac{1000 - 500 \times 0.1}{0.4 - 0.1} = \frac{950}{0.3} \cong 3170 \text{... pps}$$

加速轉矩  $T_a = T_{a1} + T_{a2}$

※對應馬達出力端之負載慣性慣量  $J_L = J_{LG} \div i^2 = 1043 \div 30^2 \cong 1.16 \text{ ... Kgcm}^2$

$$T_{a1} = \frac{J_0 + J_L}{g} \times \frac{\pi \times \theta_s}{180 \times n} \times f_1^2 = \frac{J_0 + 1.16}{980.7} \times \frac{\pi \times 0.9}{180 \times 2} \times 500^2 \cong 2.32 + 2J_0 \text{... [kgcm]}$$

$$T_{a2} = \frac{J_0 + J_L}{g} \times \frac{\pi \times \theta_s}{180} \times \frac{f_2 - f_1}{t_1} = \frac{J_0 + 1.16}{980.7} \times \frac{\pi \times 0.9}{180} \times \frac{3170 - 500}{0.1} \cong 0.5 + 0.43J_0 \text{... [kgcm]}$$

※加速轉矩  $T_a = T_{a1} + T_{a2} = (2.32 + 2J_0) + (0.5 + 0.43J_0) = 2.82 + 2.43J_0 \text{ ... kgcm}$

※馬達輸出轉矩  $T_M \geq 2 \times (T_L + T_a) = 2 \times (0 + 2.82 + 2.43J_0) = 5.64 + 0.86 J_0$

※對應馬達  $T_M$  及馬達轉子慣性慣量  $J_0$  :

※馬達可選用 TS3653N2E5 (K266) 輸出轉矩以上之馬達

**慣性慣量比 = 負載總慣性慣量  $J_L$  / 馬達轉子慣性慣量  $J_0 \leq 10$**

TS3653N2E5 (K266) 轉子慣性慣量  $J_0 = 0.26 \text{ Kgcm}^2$

慣性慣量比 = 負載總慣性慣量  $J_L$  / 馬達轉子慣性慣量  $J_0 = 1.16 \div 0.26 \cong 4.46 < 10 \text{... 適用 ok}$

※建議選用 TS3653N2E5 (K266) 之馬達

馬達轉速 =  $(3170 / 400) \times 60 = 475.5 \text{ .....RPM}$  (大於 360 RPM 以上)

※建議使用 AC 電源 ... EXD2120CE 之驅動器