



# 福萊特玻璃集團股份有限公司

(A股) 福萊特玻璃集團股份有限公司 2019年半年度報告摘要 (2019年6月30日)

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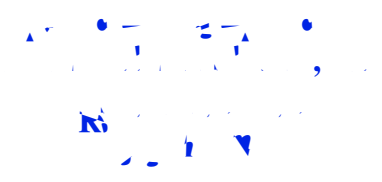
(1) 重要會計政策及會計估計 ..... (10)

(ii)  $\frac{1}{2} \frac{d}{dt} \left( \frac{1}{2} m v^2 + \frac{1}{2} m \omega^2 x^2 \right) = \frac{1}{2} m v \frac{dv}{dt} + m \omega^2 x \frac{dx}{dt}$

$\frac{1}{2} \frac{d}{dt} \left( \frac{1}{2} m v^2 + \frac{1}{2} m \omega^2 x^2 \right) = \frac{1}{2} m v \frac{dv}{dt} + m \omega^2 x \frac{dx}{dt}$   
 $= \frac{1}{2} m \left( v \frac{dv}{dt} + 2 \omega^2 x \frac{dx}{dt} \right)$   
 $= \frac{1}{2} m \left( \frac{d}{dt} \left( \frac{1}{2} v^2 + 2 \omega^2 \int x dx \right) \right)$   
 $= \frac{1}{2} m \frac{d}{dt} \left( \frac{1}{2} v^2 + \omega^2 x^2 \right)$

This is the same as the original equation, so the quantity in parentheses is constant.  
 Let  $E = \frac{1}{2} m \left( \frac{1}{2} v^2 + \omega^2 x^2 \right)$   
 Then  $\frac{dE}{dt} = 0$   
 So  $E = \text{constant}$

This is the energy of the harmonic oscillator, which is constant.



$\frac{1}{2} m v^2 + \frac{1}{2} m \omega^2 x^2 = E$   
 $\frac{1}{2} m v^2 = E - \frac{1}{2} m \omega^2 x^2$

This is the equation of a harmonic oscillator. The energy  $E$  is constant.