IV / Practical examples

Known	Unknown	Formula
Frequency : F en Hz Displacement : D in mm c/c	Acceleration in m/s²	$\gamma = \frac{4.\Pi^2.F^2.D}{2000}$
Acceleration : γ in m/s² Displacement : D in mm c/c	Frequency	$F = \frac{1}{2\Pi}.\sqrt{\frac{2000.\gamma}{D}}$
Suspended weight : M in Kg Suspension stiffness : K in N/m	Specific frequency	$F = \frac{1}{2\Pi}.\sqrt{\frac{K}{M}}$
Static deflection :Δs in mm *Only with linear behaviour*	Specific frequency	$F = 15{,}8.\sqrt{\frac{1}{\Delta s}}$
Initial frequency : Fi Final frequency : Fj Amplitude for Fi : Ai Attenuation slope : R in db/oct	Aj amplitude at Fj frequency	$Aj = Ai.\left(\frac{Fj}{Fi}\right)^{R/3}$
Drop height : H in mm Admissible residual acceleration level : γ in g	Static displacement : D in mm Specific suspension frequency	$D = \frac{2.\gamma.H}{(\gamma-1)^2}$ $\Delta s = \frac{D}{\gamma}$ $F = 15{,}8.\sqrt{\frac{1}{\Delta s}}$
Horizontal speed : V in mm/sec Horizontal stiffness : K in N/m Weight in motion : M in kg *Only with a linear behaviour*	Acceleration : γ in g Displacement : D in mm c/c Under a sudden stop	$F = \frac{1}{2\Pi}.\sqrt{\frac{K}{M}}$ $D = \frac{V}{\Pi.F}$ $\gamma = \frac{4.\Pi^2.F^2.D}{2000}$
Half sine impact time : To in msec Impact amplitude : Ao in m/s² Specific frequency : Fo Suspended weight : M in kg *Only with a linear behaviour* *In the area : Fisolator/Fshock <0.5* *Without coupling*	Suspended weight displacement : D in mm Transmitted acceleration : γ in m/s²	$V = \frac{2}{\Pi} Ao.To$ $D = \frac{V}{2\Pi.Fo}$ $\gamma = 2\Pi.V.Fo$

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