

# COMPARISON BETWEEN THE MECHANICAL MODELS APPROACH FOR THE MOVEMENT OF BALL MILLS AND THE MEASUREMENT

PRICHICI Mariana Adriana, INDRIE Liliana, GHERGHEL Sabina  
 University of Oradea  
[mprichici@uoradea.ro](mailto:mprichici@uoradea.ro)

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## ABSTRACT

This paper wants to demonstrate how is possible , by simple mechanic approach for the movement of grinding elements in vibrating tube mills to determine the operation range in which the **maximum transfer of energy** and thus the optimum combination effect exists in relation to vibration. The value obtains for the vibration amplitude is different from reality from the measurement .I imagine tow mechanic model approach for the movement and we can establish the value of vibration amplitude. The values are:

- **Mechanic Model nr.1 , of “ dividing mass in tow cylinder “**

$$A = \frac{1}{p_g} \left[ \frac{D}{2\pi} (1 - \sqrt{2\eta}) + \frac{\pi \cdot g}{2\omega^2} \right] \quad (1)$$

- **Mechanic Model nr.2 , of “ dividing mass in tow half cylinder “:**

$$A = \frac{1}{p_g} \left[ \frac{D}{2\pi} (1 - \sqrt{\eta}) + \frac{\pi \cdot g}{2\omega^2} \right] \quad (2)$$

To determine the very well approach, it is determinate the part coefficients:  $p_i = \frac{A_{c,i}}{A_{m,i}}$  (3)

and global coefficients: 
$$p_g = \frac{\sum_{i=1}^n p_i}{n} \quad (4)$$

With  $A_{c, necorec}$  value of calculated vibration amplitude and  $A_m$  value of measured vibration amplitude:

$$A_{c, corectat} = \frac{A_{c, necorectat}}{p_g} \cong A_m \quad (5)$$

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