

基于籽粒运动的多维振动筛分效率分析      Analysis on Efficiency of the Dimensional Vibration Sieve Based on the Movements of Grains

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关键词: 籽粒 多维运动 物料特性 分散性衡量指标 筛分效率

摘要: 在对现有往复式振动筛面上籽粒的非线性跳动进行理论分析的基础上, 利用LS-DYNA程序研究了往复式和两种新型多维运动筛面上籽粒的运动情况, 并提出分散性衡量指标以反映籽粒在筛面上的分散情况, 以此对3种筛面的筛分效率进行对比分析。研究中依据筛面与籽粒的实物结构和物料特性建立分析模型, 考虑籽粒与筛面及籽粒间的摩擦、碰撞作用, 求解得出籽粒的运动规律。结果表明两种新型多维筛面运动形式有利于提高筛分效率。 Based on theoretical analysis of nonlinear jump of the grain on the existing reciprocating screen, movements of grains on screen working in reciprocal and two new dimensional motion modes were researched respectively by using procedure LS-DYNA, and a dispersion measure was designed to reflect the diversification of grains on the screen, in light of which, the comparative analysis of sifting efficiency of theses three screens was performed. The research established the analytical model according to the real structure and material characteristics of screen and grains. Considering effect of friction and collision of screen to grains and grain to grain, the law of motion of grains was solved out. Results of research showed that the two new dimensional movements of vibration screen make for increase in sifting efficiency.

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