

论文

直线激振力机械振动振幅及振动方向的确定

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摘要:

通过对直线激振力振动机械的动力学和运动学分析,发现当振动机械摆动较小时,机体的运动可认为绕不动点的定轴摆动。不动点的位置只与机体绕质心惯性半径和质心至激振力线的距离有关,是振动机械结构本身所决定的固有特性;依据质心处的振幅和不动点的位置可以方便地确定机体上任一点的振幅和振动方向。通过对机体运动分析可知:振动床面上各点的振幅在该床面的分量处处相等;在垂直于该床面的分量与假想振动床面长度成正比;抛掷指数亦与假想振动床面的长度成正比。

关键词: 振幅; 振动方向; 振动机械; 直线激振力; 不动点

The determination of amplitude and vibration direction of linear excitation force vibrating machinery equipment

Abstract:

By analysis of dynamics and kinematics of linear excitation force vibration machinery, it found that when vibration machinery swung in a small range, the movement could be considered as swaying around the fixed point. The position of the fixed point, which was determined by the inherent characteristics of machinery contracture, was related only to the gyroradius of the equipment and the distance from centroid to centrifugal force line. It was convenient to fix amplitude and the vibration direction at any point in the machine according to the amplitude of centroid and the coordination of the fixed point. By analyzing the movement of the machinery, it can be acknowledged that the vibration amplitude of the bed surface of each point is equal everywhere in the bed surface of the component, and that the component perpendicular to the surface is proportional to the imaginary vibration bed surface length as well as the throwing index. This provides the theoretical basis for design and application of linear excitation force vibration machinery.

Keywords: amplitude; vibration direction; vibrating machinery; linear excitation force; fixed point

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