Dynamic Balance a Important Part of Machine Maintenance by MatthewNicholson

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Let us first know what is dynamic balancing. Extreme vibration in rotating machinery can cause undesirable levels of noise and, above all, significantly cut the life of the shaft bearings. Therefore, the ideal would be to eliminate all causes of vibration and to operate the unit totally "smooth". Unluckily, in practice, the perfect can not be got and what you do, some because inherent vibrations or imbalance will stay.

Maintenance will help to reduce and eliminate costly machine failures and unexpectedly extend the life of machinery and reduce energy consumption.

In general, vibration control and analysis using techniques such as infrared thermograph to ensure diagnostic accuracy. However, the maintenance requires more precision than the traditional method of predicting the detection of problems. Pro-active testing accuracy and maintenance of all equipment can prolong machine life by reducing vibration levels considerably lower than those found in new machinery.

Vibration testing and thermal imaging surveillance, periodic analysis of key equipment vibration and heat emissions is an important and necessary step to ensure the rotor system time and reliability.

This process helps to reduce bearing loads, improves working conditions, longer service life, increases performance and improves final product quality in general.

The use of variable frequency drives (VFD) often creates problems of reliability of engine components. The problem is worse in older machines when the speed variable was introduced because of the difficulty to avoid resonance. Therefore, testing is required to determine critical speed resonance ranges be retained in the VFD.

Balance is a process of trying to improve the distribution of the mass of a body so that it rotates on its course without unbalanced centrifugal forces.

The dynamic balancing of the rotors is necessary: â€‹â€‹-

To decrease trembling, noise, etc. which in turn improves the life of the machine and reduces operator fatigue.

To reduce the application of dynamic stress and fatigue, leading to trim down the volume of machine elements and bases required?

To condense vigor losses, as systems suck up vibration energy because to the damping present in the system.

To avoid inaccuracies and malfunctions of adjacent machines due to the transmission of vibrations. Balancing machines are to assess the imbalance of a rotor. In a distinctive dynamic balancing machine, the rotor is supported by two sets of bearings, guided by an appropriate force by a flexible coupling. The imbalance of centrifugal forces on the bearings are measured by sensors and related to the imbalance in the rotor of a measuring instrument. This imbalance can be corrected on the machine by the appropriate correction units or out of balance established.

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