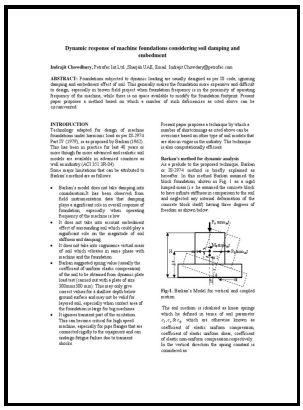
# Factors affecting the response of machine foundations to vibration.

## - - Machine Foundation Vibration Analysis Methods



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**Floor vibrations**

However, due to the ineffective mobilisation of mass near to the free end of the cantilever, the simplified method of calculating response can be unsafe and should not be used.

**General Requirements of Machine Foundations for Design and Detailing**

The use of a metronome might be useful in maintaining a steady pace. Therefore, for light damping, the damping ratio ζ, and hence the Q factor, associated with any mode of vibration can be found from the amplitude-frequency measurements at resonance and the half-power points.

**Floor Vibration**

This is often achieved through the use of piezoelectric ceramics which bend, contract, and expand in an appropriate manner by applying voltages in the 100—500 V range. This is usually accomplished with a controller, based on the general principle of a proportional—integral—differential PID controller. Designers should only use the general procedure for cantilevers.

**General Requirements of Machine Foundations for Design and Detailing**

Some general considerations for vibration isolation of objects on nonrigid structures, based on analyses of simple models can be formulated as follows: Installation of vibration-sensitive devices The upper floor vibration levels are usually 1. The acceptability of a floor is assessed by dividing the predicted acceleration by a baseline value to obtain a response factor, and checking that the calculated response factor is less than the appropriate multiplying factor given in the relevant.

**Floor Vibration**

At each point, the excitation is applied several times to average out the effects of extraneous noise.

**General Requirements of Machine Foundations for Design and Detailing**

This can be found by measuring the dynamic stiffness of the floor by means of resonance tests. Different forms of spring element can be used such as coil, torsion, cantilever and beam.

**Dynamic analysis and looseness evaluation of bolted connection under vibration of machine tools**

For most , straightforward steel construction will meet the required vibration performance criteria without modification.

**Machine Foundation Vibration Analysis Methods**

A floor which has not been designed to be continuous when loaded statically, may act as such under dynamic conditions. The software reports the results of approximately 19,000 arrangements of , loading and bay size, which have been investigated using.

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