



Micro vibrations

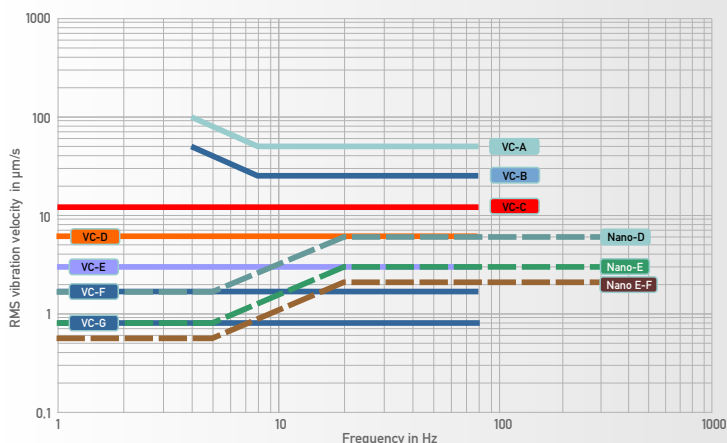
Serviceability of structures under dynamic loads acc. to VDI 2038

case study

The question of serviceability arises, among other things, when dynamic loads are applied, the effects of which have an impact on the vibration behavior of the building in parts or as a whole. For new industrial buildings, conservative load assumptions are often made very optimistically in favor of economic aspects in construction and execution.

On the other hand, manufacturers of precision measuring systems are making ever higher demands in terms of vibrations and shocks at the respective installation site. With the help of so-called VC lines, VDI 2038 defines max. permissible vibration levels based on which compliance with limit values means that trouble-free operation can be expected. Part 2 of the guideline describes the measuring methods of vibrations and shocks, as well as the requirements for the individual components of the measuring device according to DIN 45669-1.

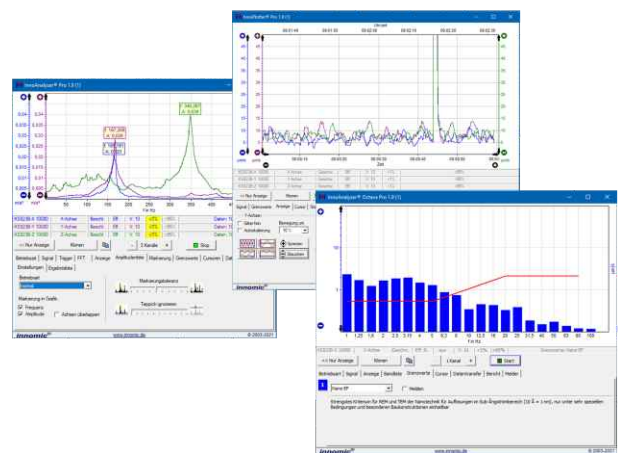
VC-Lines - limit curves of third-octave vibration velocity spectra



.VC-Lines* Vibration Criteria acc. to VDI 2038



In accordance with the requirements of the VDI guideline 2038, IDS Innomic offers a mobile measuring system with all components in the form of a handy measuring case for these measurements. In addition to highly sensitive sensors, the AD converters, cables, evaluation software and accessories are included.



Software package for third-octave band and line spectrum and characteristic values over time.

<https://www.innomic.com/en/products/vibration-measurement/vibration-sensitive-equipment/>



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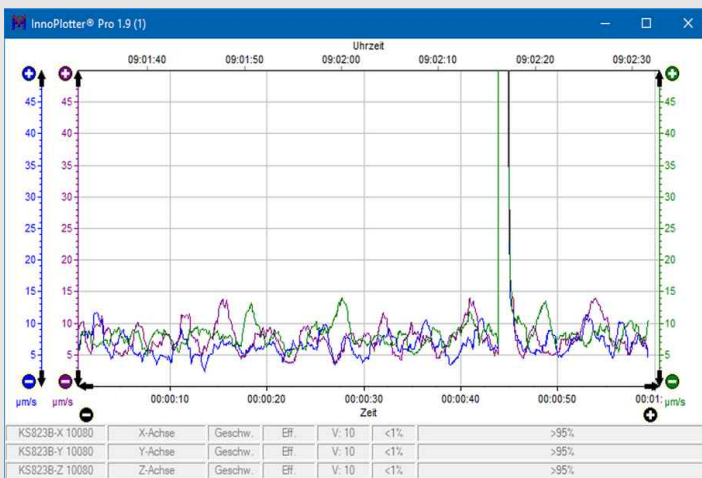
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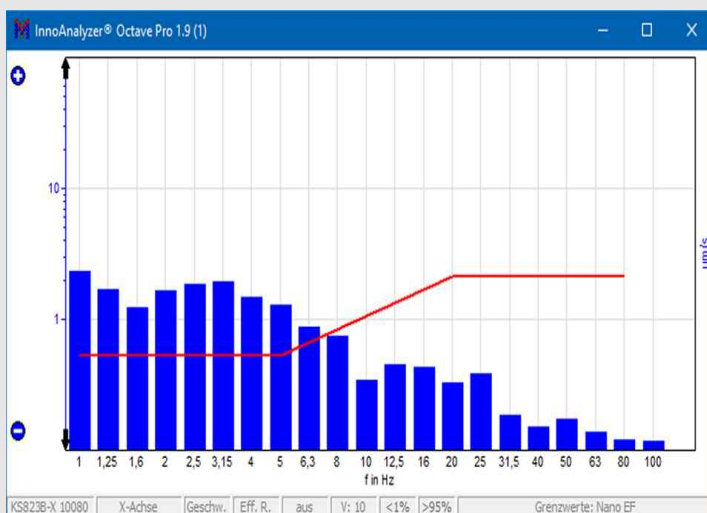
Picture 2) VC-C line, suitable for microscopes up to 1000x magnification

Classic application - new building

The production capacities at the old location are limited and the move to a larger production hall is pending. **But will the precision machines and systems also work precisely at the new location?** The vibration behavior at the old location can be measured as early as the planning phase and used as a benchmark for the construction of the new building. The knowledge of the previous conditions, which arises from such a measurement and evaluation, creates trust and security with regard to the vibration and shock requirements.



The InnoPlotter Pro makes it possible to measure and record overall vibration parameters over a period of up to 24 hours. In this way, special vibration events can be documented during the production phases.



The InnoAnalyzer Octave Pro enables the measurement to be carried out in accordance with VDI 2038. The measured third-octave band spectra of the vibration velocity are displayed together with the limit values (VC lines according to VDI 2038) in a real-time graphic. An assessment of the usability at the old location can be easily compared with the measured conditions at the new location.



The sensors are coupled for measurement on the foundation or on the installation floor using a measuring plate in accordance with DIN 45669-1. The measuring plate can simultaneously accommodate 3 individual sensors for each spatial direction (X-Y-Z). The measuring plate is leveled beforehand with appropriate adjusting screws.

Benefit for the customer

- One-time acquisition costs
- Process quality control
- In-depth knowledge of your own manufacturing plant
- Safety in dealing with manufacturer or customer requirements