

Building Vibration Kit

HD2070.BV

○ SIMPLE TO OPERATE

Complete kit, ready to use

○ FULLY ACCORDING TO REGULATIONS

ISO 2631-2:2003 & UNI 9614:2017 compliant

○ ECONOMICAL SOLUTION

Very cost effective

○ PORTABLE & RUGGED

Complete kit in carrying case

Measuring the effect of vibration annoyance on the human body

The evaluation of human exposure to **whole-body vibration in buildings** with respect to the comfort and annoyance of the occupants has to respond to specific ISO regulations.

The sources of these vibrations are many and varied. It can be an effect of machines that are installed in the building but it can also be vibration that is being generated by something from outside: demolishing of a nearby construction, nearby railroad effects, nearby highway (construction), building activities.

The **evaluation of the annoyance** is carried out on the basis of the frequency weighted acceleration value $a_w(t)$ appropriately acquired by the instrumentation and treated to obtain the V_{sor} descriptor to be compared with a series of limit values expressed in mm/s^2 and dependent on the destinations of use of buildings and from the reference period (day / night). When the values or levels of the vibrations under examination exceed the limits, the vibrations can be considered objectively disturbing for the exposed subject

HD2070.BV is the perfect solution for the application: The kit contains the necessary instrument and measuring cell, complete with all you need to measure the vibration effects.



Main Applications

Road and railway traffic
Industrial activities and machinery
Operation, road and construction site
Explosions

General Specifications

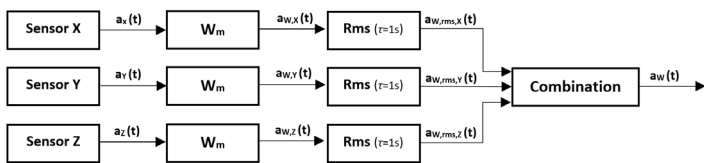
| | |
|-----------------------------|--|
| Types of vibration sources: | road and railway traffic, industrial activities and machinery operation, road and construction site activities, explosions, various types of human activities that generate vibrations |
| Reference standards | UNI 9614:2017 EN ISO 8041-1:2017 ISO 2631-2:2003 NS 8176.E |

Limits V_{sor}

| | |
|----------------------------------|---|
| Environments for residential use | daytime: 7.2 mm/s ² night time: 3.6 mm/s ² |
| Workplaces | 14 mm/s ² |
| Hospitals | 2 mm/s ² |
| Kindergartens and rest homes | 3.6 mm/s ² |
| Schools | 5.4 mm/s ² |

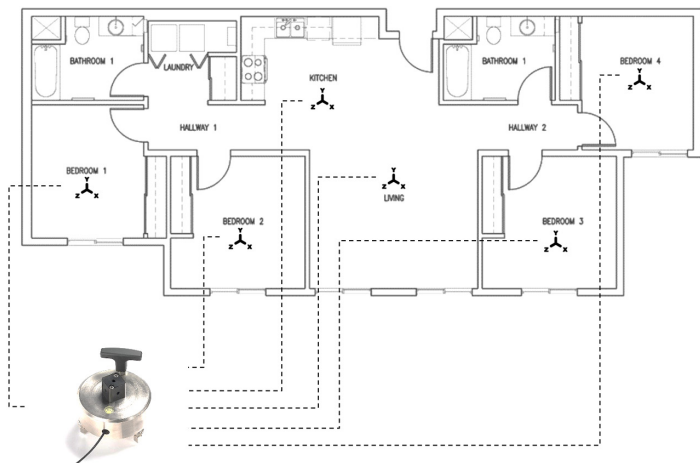
Acquisition principle

Signal processing of HD2070 vibrometers in accordance with EN ISO 8041



Accelerometer Positioning

Example of a typical positioning of the triaxial sensor on floors or surfaces of rooms used for habitable use.



HD2030AC5 - Floor positioning adaptor

Technical Specifications HD2070

| | |
|----------------------|--|
| Reference standards | EN ISO 8041-1:2017 |
| Frequency weightings | W_m independent for each acquisition channel, conforming to ISO 2631-2:2003 |
| Band-Pass filtering | F_m 0.8 Hz-100 Hz |
| Parameters | $a(t)$, $a_x(t)$, $a_y(t)$, $a_z(t)$, $a_{b_{ij}}(t)$, $a_{w_{ij}}(t)$, $a_{w_{rms_{ij}}}(t)$, $a_{w_{max}}(t)$ |

ACCELEROMETER

| | |
|---------------------|----------------------|
| Type | tri-axial |
| Sensing element | MEMS |
| Nominal sensitivity | 1 V/ms ² |
| Frequency response | 0.2 Hz- 400Hz |
| Sampling frequency | 8 KHz |
| Resolution | 25 bit |
| Typical Noise | < 1mm/s ² |
| Storage | SD card up to 8Gb |

HD2070.BV kit includes:

HD2070.K1 3-channel vibration analyzer kit for IEPE accelerometers - data logging functions with 8 MB memory and SD card – recording of vocal comments associated to the measurements – RS232 and USB interface. It includes manufacturer calibration of the measurement chain with calibration report according to ISO 8041-1.

HDBV-1000 IEPE tri-axial high sensitivity accelerometer

HD2030CAB3M-5M Cable for connection of tri-axial accelerometers with 4pin M5 connector. Length 5 m.

HD2030AC5 Floor positioning adaptor according to ISO 5348 with spirit level and adjustable feet to allow a perfect isostatic support. Protected accelerometer mounting.

Firmware Options

HD2070.O1 'Spectral analysis' - real time, octave and third-octave filters compliant with IEC 61260

HD2070.O2 'Statistical analysis' - probability distribution in 1dB classes. Percentile levels from L_1 to L_{99}

HD2070.O3 'Digital signal recording' on all channels in parallel with acceleration profiles and frequency spectra

Accessories

HD2060 Portable calibrator for vibrating chains according to EN ISO 8041-1. Frequency: 1000 rad/s (160Hz) or 100 rad/s (16Hz) Amplitude: 10m/s² o 1m/s²

Delta OHM

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In order to ensure the quality of our instruments, we are constantly re-evaluating our products. Improvements can imply changes in specification; we advise you to always check our website for the newest version of our documentation.

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