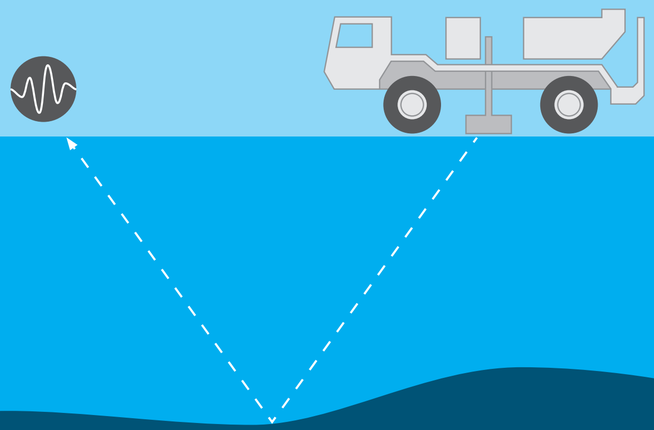
The VibroScan process enables precise prognoses — and thereby target oriented countermeasures

Vibration protection requires a prediction before the trains run. Dynamic parameters from geology and buildings are not sufficiently detailed. Only through the simulation of vibrations can an accurate prediction be made.



The VibroScan process was developed from 1993 in Austria and is based on the extensive equivalence between train vibrations and sweep experiements.

The aim of the VibroScan process is to simulate vibrations as genuinely as possible. To do this, a seismic vibrator produces oscillations in a gradual frequency band, called sweep, which represents the vibrations.

We are specialists with 40 years of experience

The Steinhauser Consulting Engineers have over 40 years of experience in the area of vibrations and ground borne noise. This includes vibrations from railway, tramline and road traffic as well as blasting engineering, industrial and power station vibrations.

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Areas of activity

- Vibrations, dynamics and noise
- VibroScan
- Blasting engineering
- Securing evidence, supervising construction and approval
- Climatology, light and shades, air quality
- Software development
- Research and development

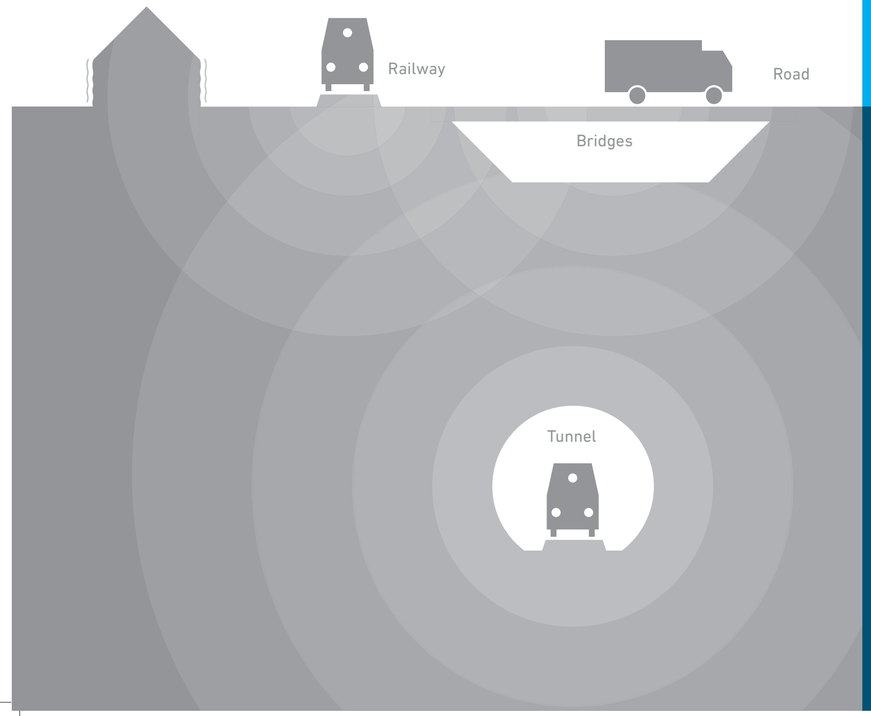
VibroScan

Simulation and prognosis of vibrations

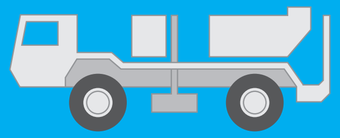
www.vibroscan.at

Vibrations occur in all areas where heavy loads are moved.

Vibration prognoses are required for railway construction, construction dynamic problems, bridge inspections and machine foundation rating. Since immissions do not just depend on the source of vibration but are also tuned by the geodynamic behaviour of the underground, as well as the construction-dynamic response of the affected building, trials are necessary using an alternative means of excitation.



Technical data



Vehicle	
Length	9.36 m
Width	2.50 m
Height	3.20 m
Weight	21.0 t
Turning circle	3.00 m
Wheelbase	4.65 m

Seismic vibrator	
Actuator mass	3500 kg
max. excitation force	227 kN
max. frequency band	1 – 250 Hz
Ground plate	2.0 m²
Load on ground plate	19.3 t
Sweep length	1 – 64 seconds

Areas of application

- Vibration analysis
- Ground borne noise analysis
- Mobility analysis
- Resonance frequency analysis
- Construction dynamic analysis (active, passive isolation)

Application spectrum of use

Tunnel projects
Railway, tramline, road

Civil engineering above ground
High-rise buildings, railway stations, bridges

Underground civil engineering
Railways, machine foundations

Compliant with standards

- ISO 14837-1 and ISO 10813-1
- ÖNORM S9012
- DIN 4150-2
- BEKS
- RVE 04.02.02

Five of 1,000 international projects

Lainz Tunnel (A)

The Lainz Tunnel runs beneath a densely populated residential district through the urban area of Vienna. At a total of 88 VibroPositions, more than 180 buildings were examined and about 10 km of floating slab system were planned.

Semmering Base Tunnel (A)

For the Semmering Base Tunnel, VibroScan trials were carried out in the test tunnel in Mürzzuschlag and in the area of Aue for pre-dimensioning of vibration protection measures.

Barcelona (E)

The high-speed railway tunnel in Barcelona runs right next to the world heritage site of Sagrada Familia. The structure was subjected to a vibration examination right up to the peaks of the towers using a complex measuring programme in order to protect it against vibrations and ground borne noise.

Gotthard Base Tunnel (CH)

In the Gotthard Base Tunnel, a comprehensive test programme was used to simulate the effects of railway traffic on neighbouring buildings in order to calculate the degree of protective measures.

Deggendorf (D)

The new railway line in Deggendorf is approaching existing properties. The VibroScan generator supplies test data to determine the extent of vibration protection.