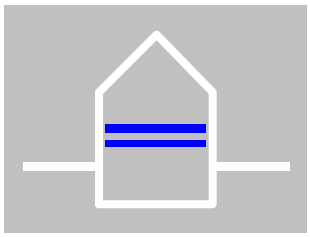
2 CDM – FLOATING FLOOR SYSTEM



CDM-ISO-FLOOR

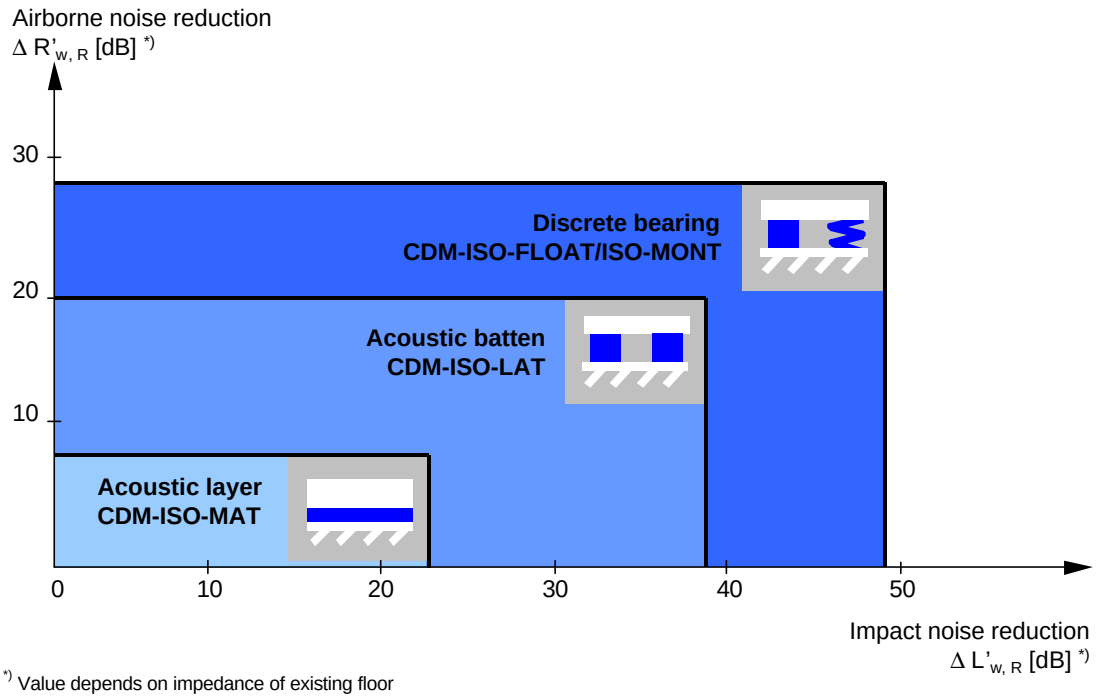
PRODUCT OVERVIEW

The CDM floating floor systems **CDM-ISO-FLOOR** provide the isolation of a floor against the impact of noise and vibration nuisance. This ensures high degrees of living and workplace comfort in noisy or vibration-active environments such as factories, technical floors, discotheques, sports halls etc. Thanks to its high performance, the **CDM-ISO-FLOOR** system is also very effective in areas that require low background noise levels such as recording studios, auditoria, concert halls, theatres, anechoic rooms, etc.

Depending on the required isolation level, different types of floating floor systems can be proposed:

- Discrete bearings (elastomers or steel springs) **CDM-ISO-FLOAT/ISO-MONT** for uniformly distributed loads and especially for non-uniformly distributed loads that ask for a varying stiffness and high acoustical performance in the low frequency area
- Acoustic battens **CDM-ISO-LAT** for uniformly distributed loads
- Soft acoustic layers **CDM-ISO-MAT** for uniformly distributed loads

The noise reductions that can be obtained with these systems are displayed in the graph below. Please note that the boundaries in the graph are only indicative and depend on the acoustic performance of the existing floor. The figures hold for floating floors of about 15 cm concrete maximum.



*) Value depends on impedance of existing floor

THEORETICAL BACKGROUND

The basic parameter in vibration isolation is the resonance frequency f_0 of the system:

$$f_0 = \frac{1}{2\pi}\sqrt{\frac{K}{m}}$$

The dynamic stiffness K of the floating floor (in N/m/m²) is the sum of the stiffness of the air layer and the stiffness of the bearings:

$$K_{tot} = K_{air} + K_{dyn}$$

The dynamic stiffness of the air layer K_{air} is calculated with:

$$K_{air} = \frac{110000}{\text{thickness air layer (in m)}}$$

The dynamic stiffness of the bearing is given by:

$$K_{dyn} = m \times (2\pi \times f_{bearing})^2$$

This parameter can be found in the CDM product data sheets.

The mass of the floating floor is the total acoustic load P divided by g, gravity:

$$m = \frac{P}{9.81}$$

The acoustic load consists of G, the dead load of the floor and Q, the live load on the floor, both in N/m²:

$$P = G + (Q/3)$$