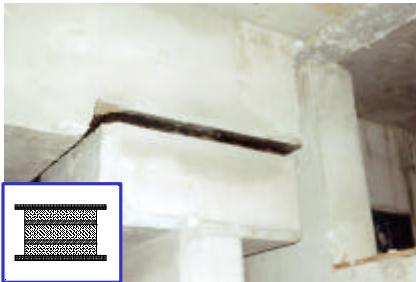


# NOISE AND VIBRATION CONTROL

## CDM-ISO-STRUCTURE

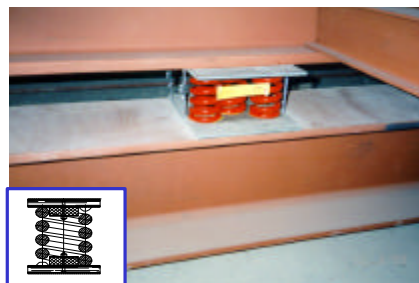
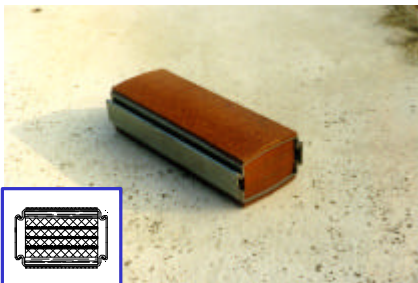
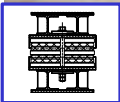
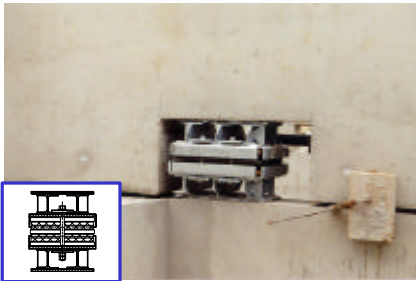


### Building base isolation $f_{res} \geq 3 \text{ Hz}$

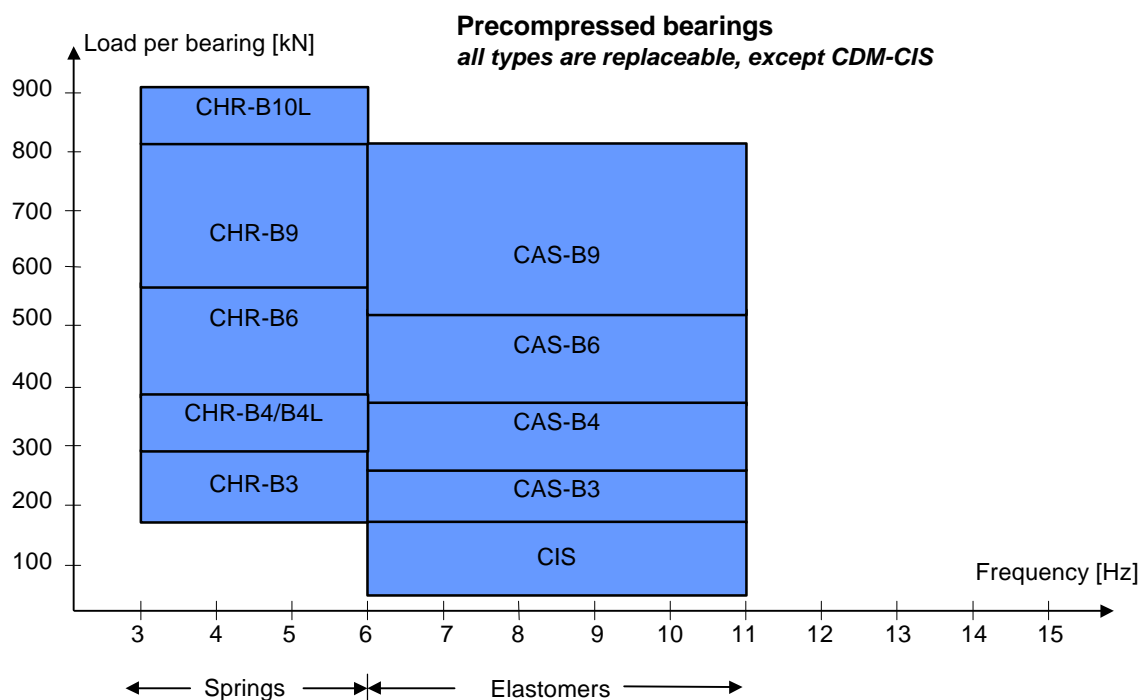
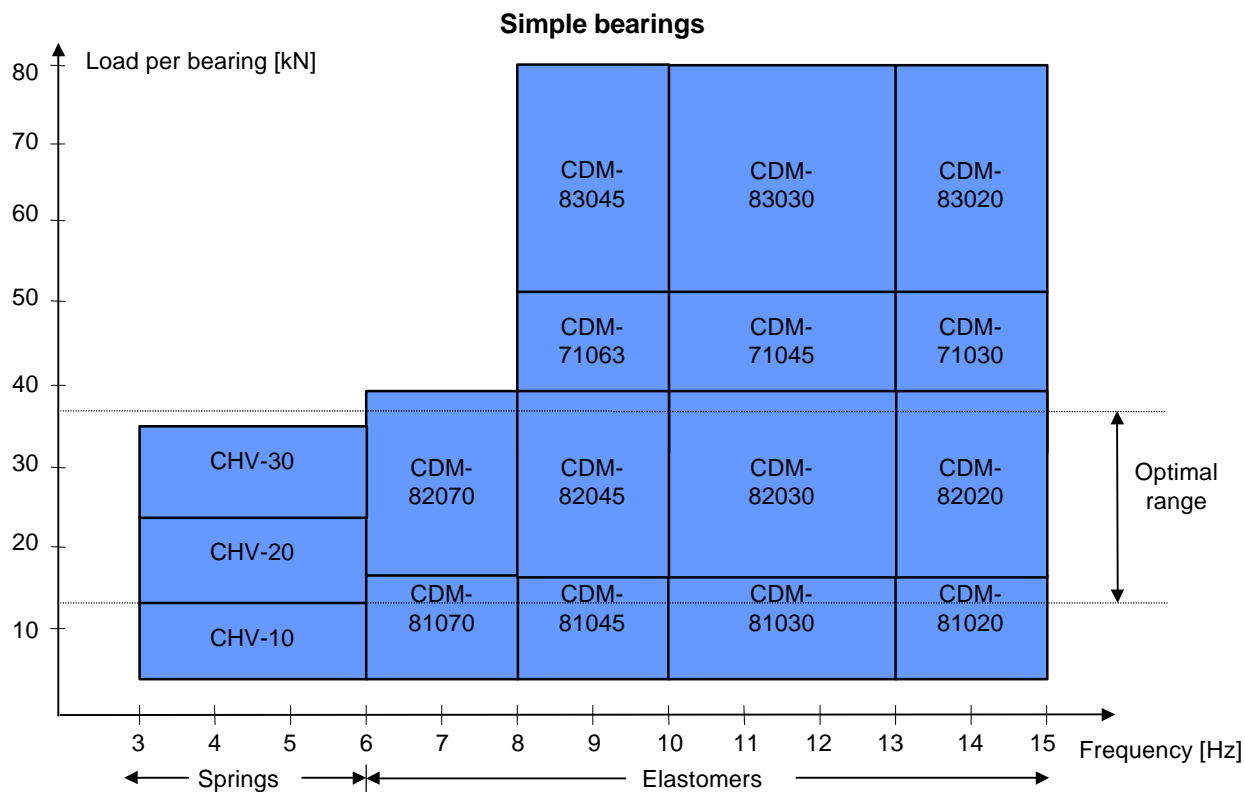


### CDM-ISO-STRUCTURE

- for structural isolation of buildings against noise and vibrations (railway and road traffic, music, machinery...)
- based on simple or precompressed steel springs ( $f_{res} = 3-6 \text{ Hz}$ ) or on simple or precompressed elastomer bearings ( $f_{res} = 6-15 \text{ Hz}$ )
- precompressed bearings or springs can be accessed after installation for visual control or replacement
- installation plans and technical assistance on site provided by CDM
- references since 1964 (list available on request)







In both graphs the load per bearing P is calculated as  $P = G + Q/3$  with G the dead load and Q the live load.

It is essential that the placement of the bearings corresponds exactly to the distribution of static and dynamic loads in order to obtain a uniform movement/deflection of the system. To ensure this, CDM provides the installation drawings and all technical assistance with the CDM products. Technical data about each of the **CDM-ISO-STRUCTURE** systems can be found in the product sheets.



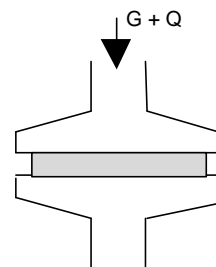


surface load per bearing  $\sigma = 21.6 \text{ kN} / (100 \text{ mm} \cdot 100 \text{ mm}) = 2.16 \text{ N/mm}^2$  within optimal range 1.5 – 3.5  $\text{N/mm}^2$

**Conclusion:** 25 bearings CDM-82045 with dimension 100\*100\*45 mm.

**Example 2:**

Given: Dead load  $G = 500 \text{ kN}$   
 Live load  $Q = 120 \text{ kN}$   
 Surface area  $a \cdot b = 600 \cdot 600 \text{ mm}$   
 Resonance frequency  $f_{\text{res}} = 4 \text{ Hz}$   
 Boundary conditions integrated replaceability of bearings needed  
 fire protection has to be foreseen

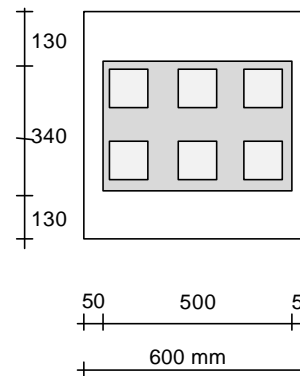


Wanted: Type and number of bearings

Solution: 1. Integrated replaceability of bearings needed → precompressed bearings

2.  $f_{\text{res}} = 4 \text{ Hz} < 6 \text{ Hz}$  → springs

3. Maximum number of bearings n:  
 $a' = b' = 600 \text{ mm} - 25 \text{ mm} - 25 \text{ mm} = 550 \text{ mm}$  (fire protection both sides)  
 area per bearing (CHR-B6:  $A \cdot B = 500 \cdot 340 \text{ mm}$ ):  
 $A' \cdot B' = 500 \cdot 340 \text{ mm}$   
 $n_a = 550 \text{ mm} / 500 \text{ mm} = 1$



4. Load:  $G + Q/3 = 500 + 120/3 = 540 \text{ kN}$   
 $P_{\text{bearing}} = 540 \text{ kN} / 1 = 540 \text{ kN}$

5. Type:  $f_{\text{res}} = 4 \text{ Hz}$  and  $P_{\text{bearing}} = 540 \text{ kN}$  see graph for precompressed springs CHR-B6

**Conclusion:** 1 bearing CHR-B6 with dimension 500\*3400\*45 mm.

