1

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Citrigon®
Elastomeric bearing for vibration isolation

Product information

DIMENSIONS AND WEIGHTS		
Available bearing sizes	80 mm x 80 mm 120 mm x 120 mm 160 mm x 160 mm 200 mm x 200 mm 240 mm x 240 mm	
Thickness	37 mm	
Weight	102 kg / m²	
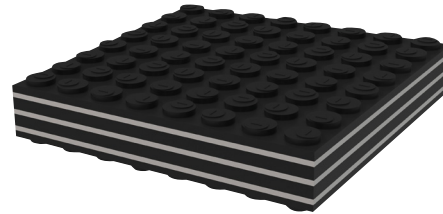
| PROPERTIES	
Materials	NR rubber with reinforcement of weatherproof steel
Permanent load	≤ 7 N/mm²
Permanent load + dynamic load	≤ 12 N/mm²
Load peaks (occasional and short-term)	≤ 16 N/mm²
Thermal stability	-30°C + 60°C
Flammability	B2 acc. to DIN 4102 (normally combustible)
Water absorption	Practically no water absorption

The elastomeric bearing Citrigon® is used for vibration damping at very high loads. The steel-reinforced bearing is made of a durable elastomer based on natural rubber. The thickness is 37 mm. Depending on the format of the respective bearing, natural frequencies of 10 Hz can be achieved for the system mounted on Citrigon®. The bearing can, also depending on the format, absorb a compression stress of up to 15 N/mm².
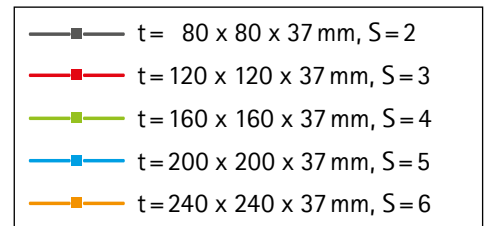
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Natural frequency at a bearing thickness of 37 mm

Axis labels: NATURAL FREQUENCY f_0 [Hz] vs SPECIFIC LOAD σ [N/mm²]

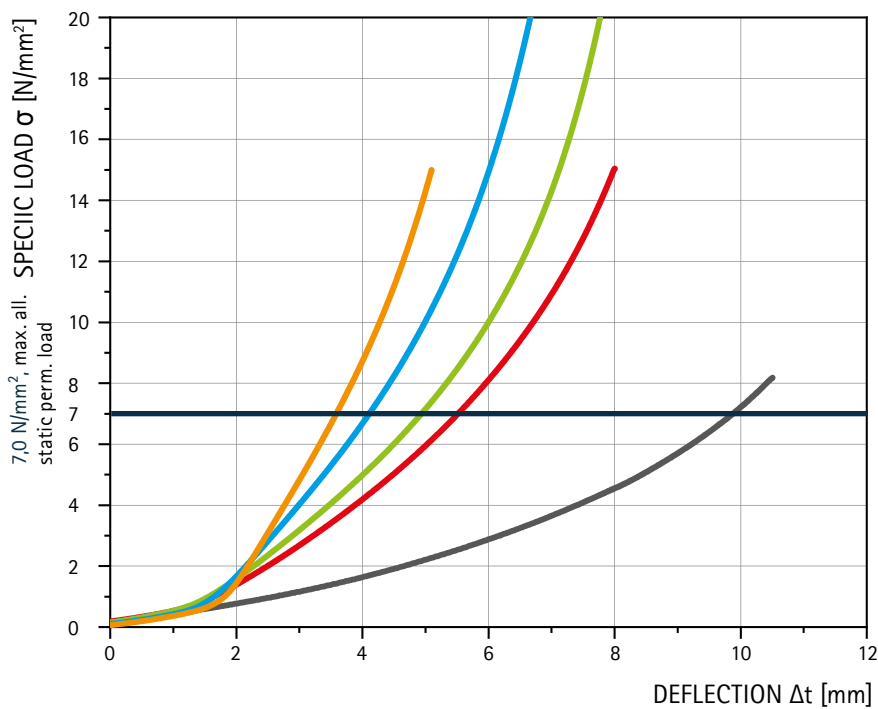7,0 N/mm²
max. all.
static permanent load
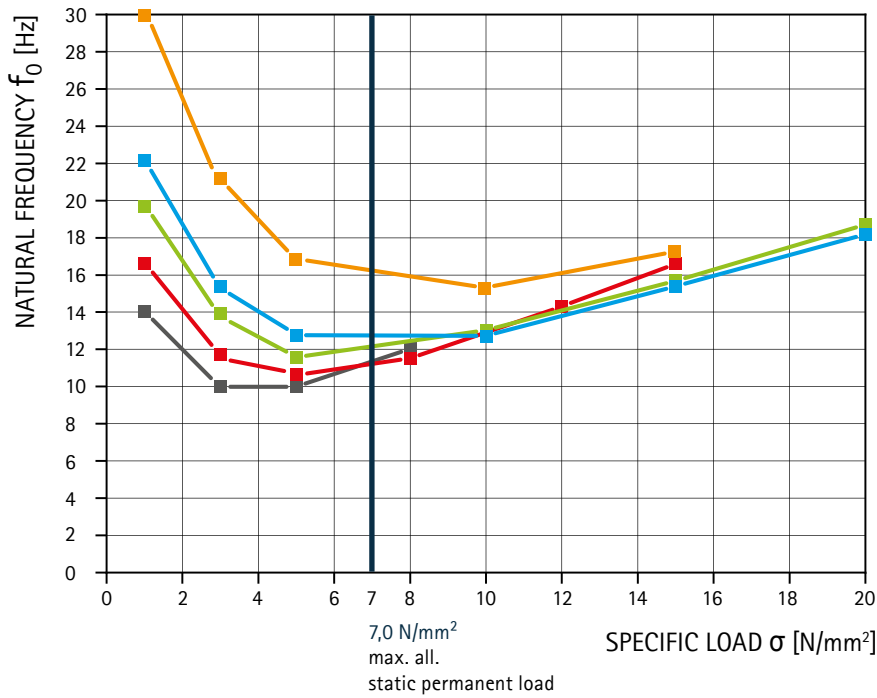
NATURAL FREQUENCY CURVE

The natural frequency f_0 of an ideal single-mass oscillator mounted on Citrigon® is an essential characteristic for the evaluation of the vibration damping effect. The figure shows the dependence of f_0 on the bearing format using square bearings of 37 mm thickness with two elastomer layers. As an approximation, it can be assumed that f_0 and the deformation are identical for bearings with the same shape factor S and the same number of elastomer layers.
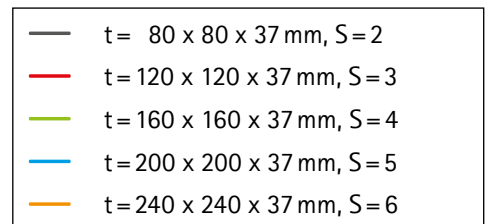
■ t = 80 x 80 x 37 mm, S = 2
■ t = 120 x 120 x 37 mm, S = 3
■ t = 160 x 160 x 37 mm, S = 4
■ t = 200 x 200 x 37 mm, S = 5
■ t = 240 x 240 x 37 mm, S = 6

Load deflection

Axis labels: SPECIIC LOAD σ [N/mm²]; 7,0 N/mm², max. all. static perm. load; DEFLECTION Δt [mm]

LOAD DEFLECTION CURVE

The figure shows the deflection load curves of 37 mm thick Citrigon® bearings with two elastomer layers and square footprint. For bearings with the same form factor and the same number of elastomer layers, the deformation is approximately the same regardless of the form.
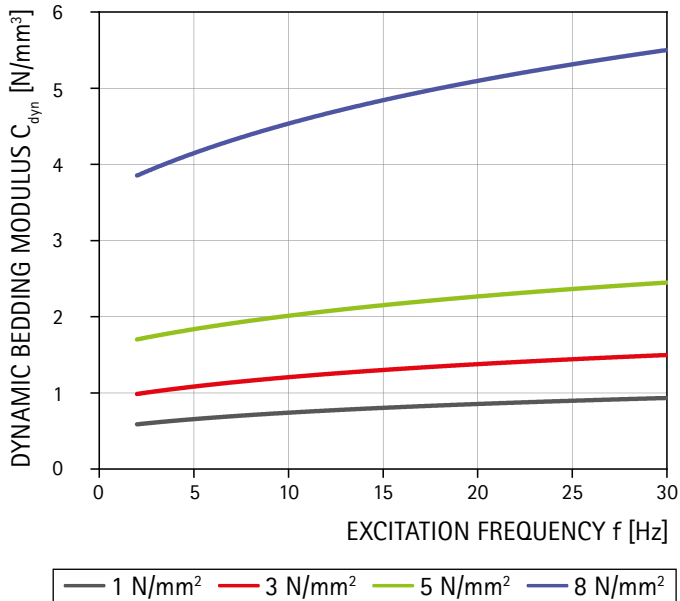
— t = 80 x 80 x 37 mm, S = 2
— t = 120 x 120 x 37 mm, S = 3
— t = 160 x 160 x 37 mm, S = 4
— t = 200 x 200 x 37 mm, S = 5
— t = 240 x 240 x 37 mm, S = 6

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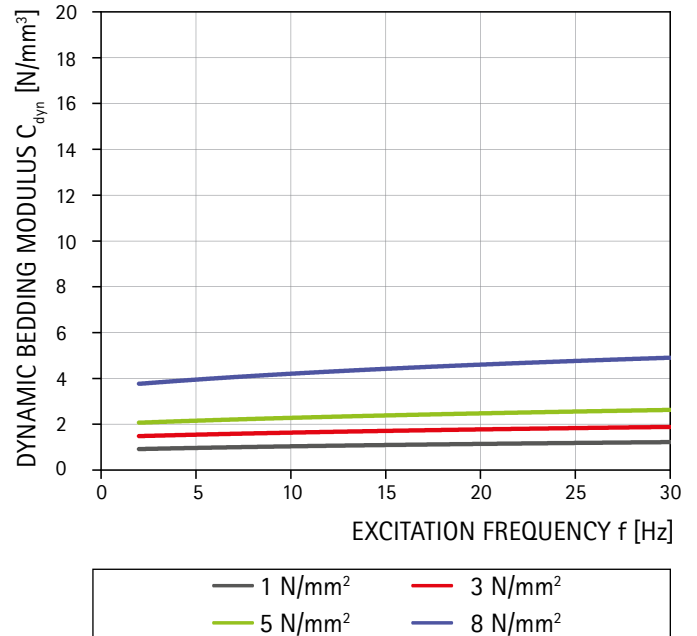Elastomeric bearing for vibration isolation

Dynamic bedding modulus

The dynamic bedding modulus C_{dyn} of Citrigon® depends on the excitation frequency f, the vertical compressive stress σ and the bearing dimensions. C_{dyn} is shown in the following orientation diagrams for several bearing formats with 37 mm thickness:
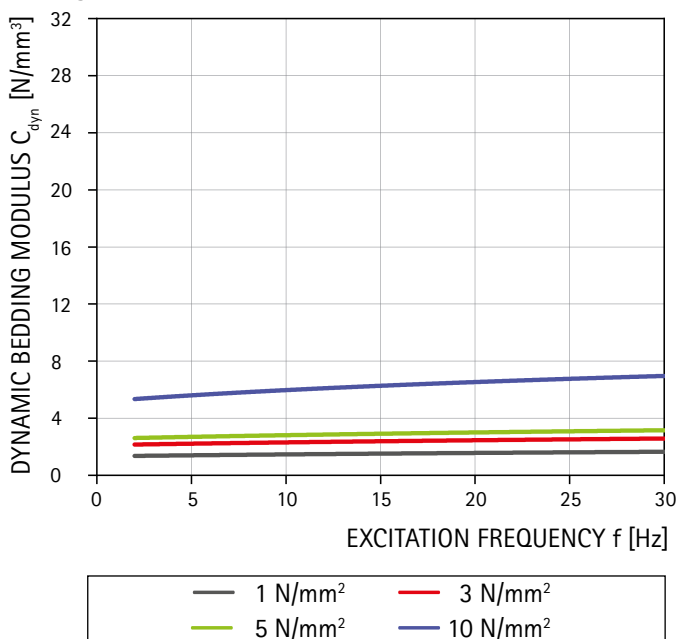
Bearing dimensions: 80 x 80 mm

Legend: — 1 N/mm² — 3 N/mm² — 5 N/mm² — 8 N/mm²

Bearing dimensions: 120 x 120 mm

Legend: — 1 N/mm² — 3 N/mm² — 5 N/mm² — 8 N/mm²

Bearing dimensions: 160 x 160 mm

Legend: — 1 N/mm² — 3 N/mm² — 5 N/mm² — 10 N/mm²

Bearing dimensions: 200 x 200 mm

Legend: — 1 N/mm² — 3 N/mm² — 5 N/mm² — 10 N/mm²

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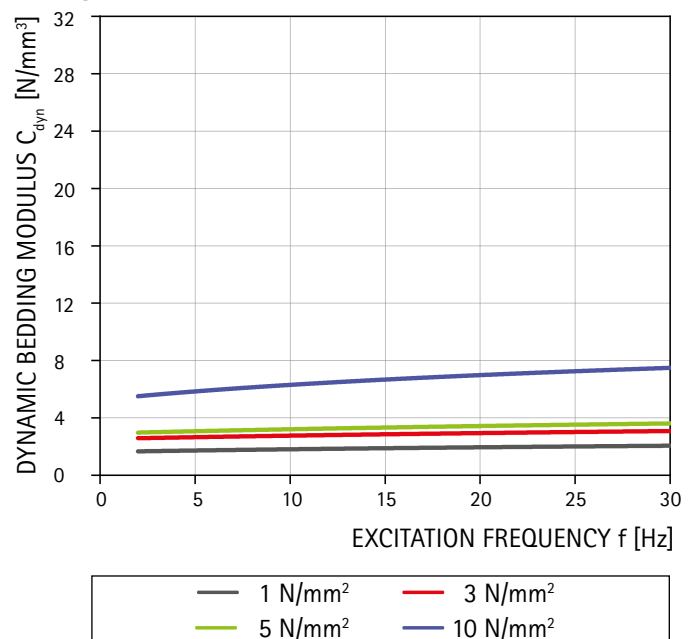
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Dynamic bedding modulus

Bearing dimensions: 240 x 240 mm

Legend:
- 1 N/mm²
- 3 N/mm²
- 5 N/mm²
- 10 N/mm²

(Y-axis: DYNAMIC BEDDING MODULUS C_{dyn} [N/mm³], X-axis: EXCITATION FREQUENCY f [Hz])
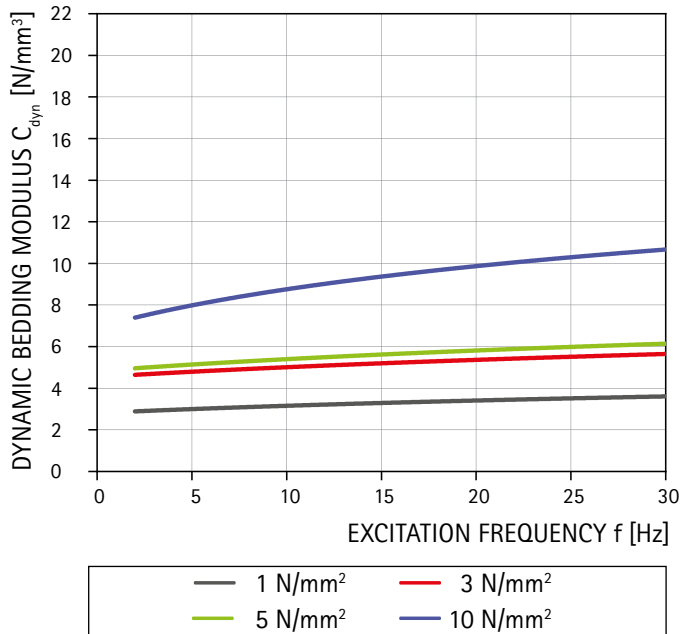
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