

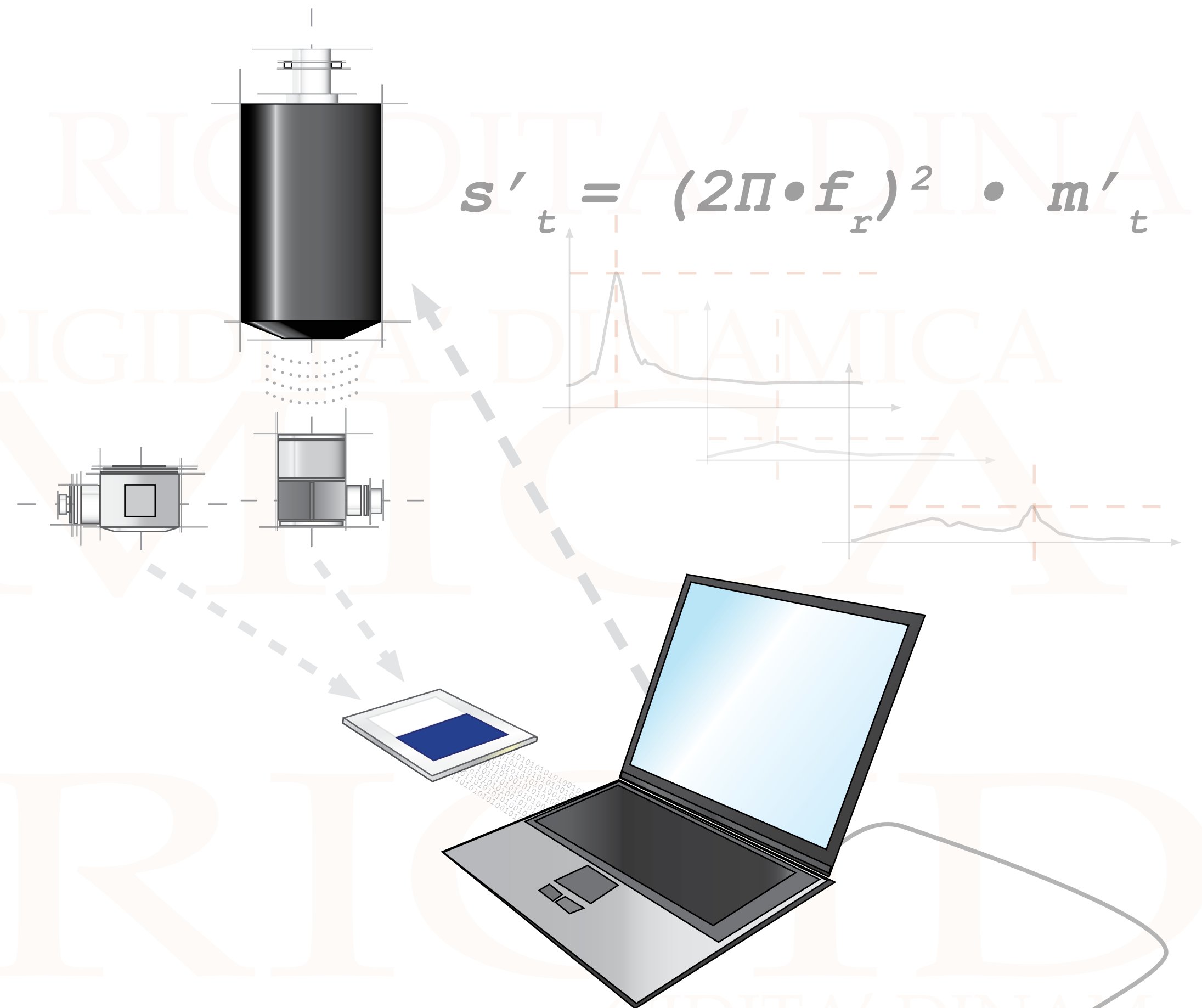
# EZ DS - DYNAMIC STIFFNESS

## DYNAMIC STIFFNESS MEASUREMENT OF RESILIENT MATERIALS - EN ISO 29052-1

Floating floors are used worldwide to obtain a reduction of impact sound of floors. The floating floor is made of a concrete slab (the mass) located above a resilient material (the spring), thus realising the so-called Mass - Spring System studied by any student during the Physics course at school. The resilient material works as a spring and the impact sound may be reduced since the mass -spring system is able to absorb the main part of this energy.

The acoustic attenuation of a resilient material depends mainly on a physical property called dynamic stiffness, that resumes the resilient and dumping properties of a viscoelastic material.

Every manufacturer of resilient materials should be interested in such property. The system EZ DYNAMIC STIFFNESS allows you to measure and calculate immediately automatically the dynamic stiffness of any material according to the international standard ISO 9052-1 (also EN 29052-1 in Europe). This is done by evaluating the resonance frequency of a system where all components but the sample under test are supplied by MICROBEL s.r.l.campione.



RISULTATO DELLA MISURA	
Campione: Materiale XYZ	
Massa:	320 g
Spessore:	0,2 cm
Densità:	25,0 kg/m³
Massa per unità di superficie:	Kg/m²
Carico statico:	200,0 Kg
Massa per unità di area del carico:	Kg/m²
Frequenza di risonanza:	46,0 Hz
Rigidità dinamica appaerate:	17,60 MN/m²
Il dato calcolato viene arrotondato a: 18 MN/m²	
Smorzamento:	8,5 %
L <sub>w</sub> :	19,0 dB

## COMPONENT OF EZ DS

- Electromechanical Shaker
- Accelerometer
- Load cell
- Conditioning and amplification system
- Acquisition Board Compact Flash II
- Steel plate according to ISO 9052-1
- Cables and accessories
- Software (PC is not included but necessary....)

## How it works...

- sensors and shaker must be connected to the PC by means of the conditioning and amplification system; no more electronic devices are required (noise generator to excite the shaker is included in the software)
- data acquisition comes through the Compact Flash Type II board, to be installed in the PC
- software (completely developed by MICROBEL) is able to operate the system in a completely automated way, from the beginning (check of the sensors) to the end, with the print of a certificate in Microsoft® Excel format

## SOFTWARE FEATURES

### Control features:

- Acquisition settings: max frequency and resolution, number of averages on FFT, weightings and windowing, filtering applied to force and acceleration signals;
- Shaker signal settings: waveforms (including white and pink noise), frequency, amplitude tipo di forma d'onda (compresi rumore bianco e rosa), frequenza, ampiezza (calibration of the force introduced in the system according to the ISO standard, that requires a 0,2 N max force), type of test (linear or sweep)
- Settings can be saved

### Analysis features

- Available functions on display: amplitude and phase of the FRF acceleration-force, coherence, cross-spectrum, time signals (in real time during acquisition)
- Display modes: single graphs or superimposed synchronised, advanced graphics settings
- Calculation mode: automated calculation of the resonance frequency (selection of the frequency band generated by the shaker during the test), manual calculation of the resonance frequency (by a shiftable cursor), calculation of the quality factors Q, Q+, Q- and of damping, but also of the reduction of impact sound (ΔL<sub>w</sub>)

### Print out features:

- the certificate of a sample include up to 5 tests (averaged, but available one by one) and all available in Microsoft® Excel format



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