

Quasi-static mechanical analyzer (QMA)

The Quasi-static Mechanical Analyzer (QMA) is specifically designed to obtain a reliable measurement of the elastic properties of a wide range of poroelastic materials used for noise control.



The elastic properties needed to feed acoustical models for isotropic porous elastic materials are :

- E – Young's modulus (N/m²)
- ν – Poisson's ratio
- η – Damping loss factor



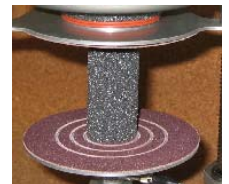
Novel compression method designed by the Université de Sherbrooke using polynomial relations to simultaneously measure the three elastic properties.

The QMA and other related hardware for materials testing and characterization have been validated against other mechanical analysis methods as well as analytical software modeling.

The QMA has been a proven value to the world's leading materials suppliers to both the automotive and aircraft industry. It is used for:

- quality control in the manufacturing process of materials
- R&D applications
- feeding acoustical prediction software

The elastic properties measured with the QMA are compatible with the Biot's poroelasticity equations and Biot-based programs: Nova™, VA One™, and MSC Actran™



The QMA system includes the QMA hardware, the USB DAQ system, software QMA-X™, a calibration spring to validate the test procedure, and a user's manual.

The QMA-X™ software fully controls the measurement and calculate the statistics on the elastic properties.

The frequency range is typically 10-100 Hz.

The QMA works with disc shaped samples as those used for Mecanum's impedance tubes, porosity meter, and static airflow resistivity meter.

QMA : 23 x 41 x 56 cm³, 12 kg

DAQ : 54 x 20 x 33 cm³, 5 kg

