Electrically Tuneable MiniSuspension - ETS500

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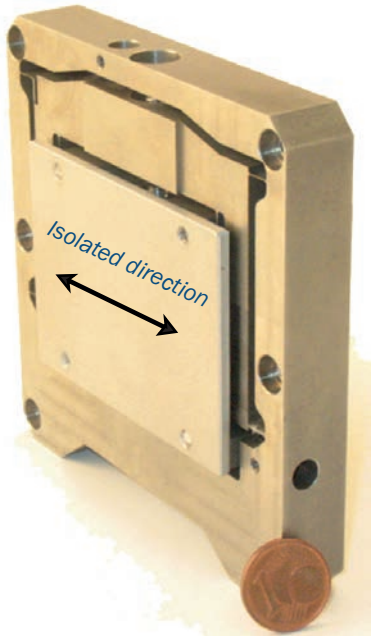
OBJECTIVE

The ETS500 is a high-performance mini-suspension that provides single-axis vibration isolation for highprecision measurement devices or for their components. Thanks to an innovative semi-active control, the system is particularly efficient against low frequency vibratory energy. The Electrically Tuneable Suspension is a compact and cost effective solution which is particularly suitable for isolating light weight devices such as optical lenses.

Fig. 1: Views of the Electrically Tuneable Suspension

Moreover, the ETS500 can be electrically tuned in function of the application to reach the highest performances. Its semi-active control allows better vibration isolation compared to voluminous passive low frequency suspensions. Using standard Cedrat Technologies electronics, this mini suspension is easy to set and use.



DESCRIPTION

The Electrically Tuneable Suspension is based on the APA™ patented technology. The APA™ (Amplified Piezo electric Actuator) is a mechanically magnified preloaded stack of low voltage piezoelectric ceramics (MLA). The mechanical amplification is obtained thanks to an external elliptical shell made of stainless steel which magnifies along the short axis the MLA deformation occurring along the main axis.

The system features:

- A steel base providing easy fitting and housing for suspending and actuating elements.
- An isolated mobile interface made to host the vibration-sensitive element.
- The standard CEDRAT TECHNOLOGIES low cost and low noise Compact Amplifier CA45. The CA45 is a standalone one channel driver able to control the Electrically Tuneable Suspension.
- A compact size with dimensions as low as 89x89x18 mm (3.5x3.5x0.7”).
- Single axis isolation with the possibility to stack the units and get an X-Y compact suspension.

PERFORMANCE

All performances are given for an isolated mass of 100g corresponding to the mobile interface without payload. The added isolated device weight will have a positive effect on the Electrically Tuneable Suspension performances.

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REMARKS

Customized Electrically Tuneable Suspension can be designed to meet your requirements (Mechanical mounting, interface, harsh environment, etc.) - simply contact CEDRAT TECHNOLOGIES for further details.

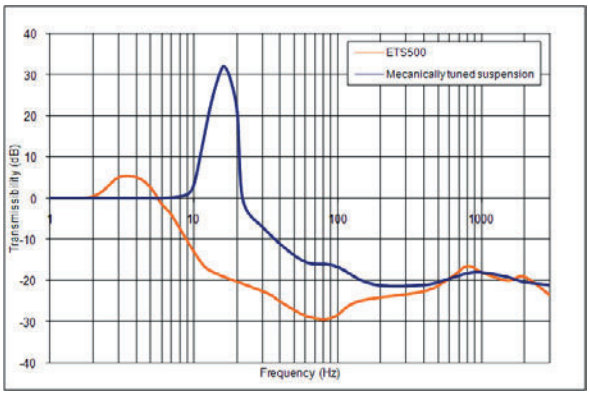

Fig. 2: Comparison of the Electrically Tuneable Suspension performances compared to a conventional passive mechanically tuned suspension performances.

REFERENCES	UNIT	PERFORMANCES
Technology	Semi-active control based on CEDRAT TECHNOLOGIES patented APA™	
Resonance frequency	Hz	3.5
Cutoff frequency (-3dB) Hz 2.5	Hz	2.5
Attenuation slope	dB per decade	-40
Isolated DOF		1(2 with stacked units)
Stiffness	N/mm	0.050
Dimensions	mm(in)	89x89x18 (3.5x3.5x0.7)
Weight	g	550
Electronics	CEDRAT TECHNOLOGIES CA45 UC45 controller	

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