

## Mass damper – Vibration absorber

A mass damper is a vibration absorber able to attenuate the vibrations of a structure or a machinery thanks to a synergistic action of different physical phenomena.

The mass damper, in fact, is a seismic mass fixed to the structure to damp by viscoelastic supports. Such supports acts on the structure with elastic and damping forces contemporary.

Therefore, by a mass damper it's possible to increase the global damping of the system without the necessity to modify the mechanical structure or the mountings of the system. In fact, Eidos mass dampers can replace the anti-vibration mountings or improve their effect.

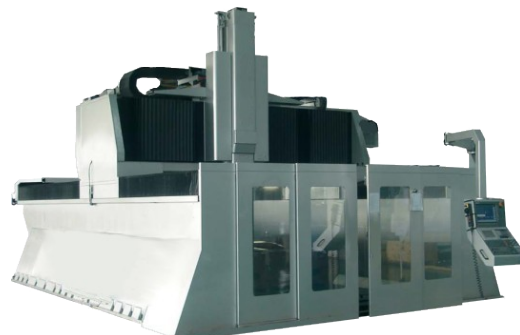
By Considering the damping of standard structures, the application of an Eidos mass damper achieves a vibration attenuation greater than 60%.

To obtain these results, the mass damper and its supports must be correctly calculated and selected for a well defined application.

Eidos Engineering designs and furnishes mass dampers for any type of industrial machinery and application.

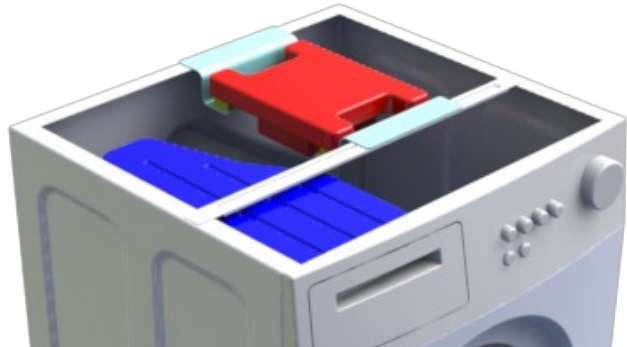
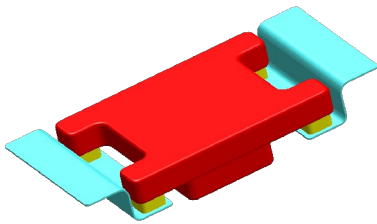
### Fields of application

- Household appliances
- Civil and industrial vehicles
- Boats and yachts
- Tool machines
- Combustion engines
- Electric motors
- Transmissions and gearboxes
- Energy generation plants



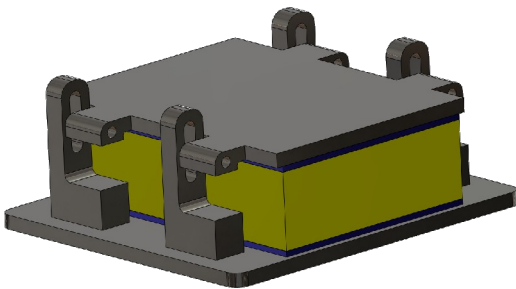
## Case studies

Mass damper for a household appliance.



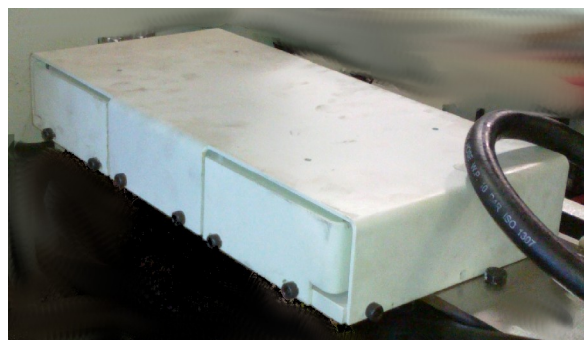
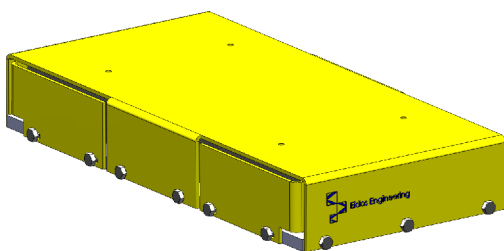
Mass damper for attenuation of chatter in a milling machine.

Type EMD150



Mass damper for a tool machine.

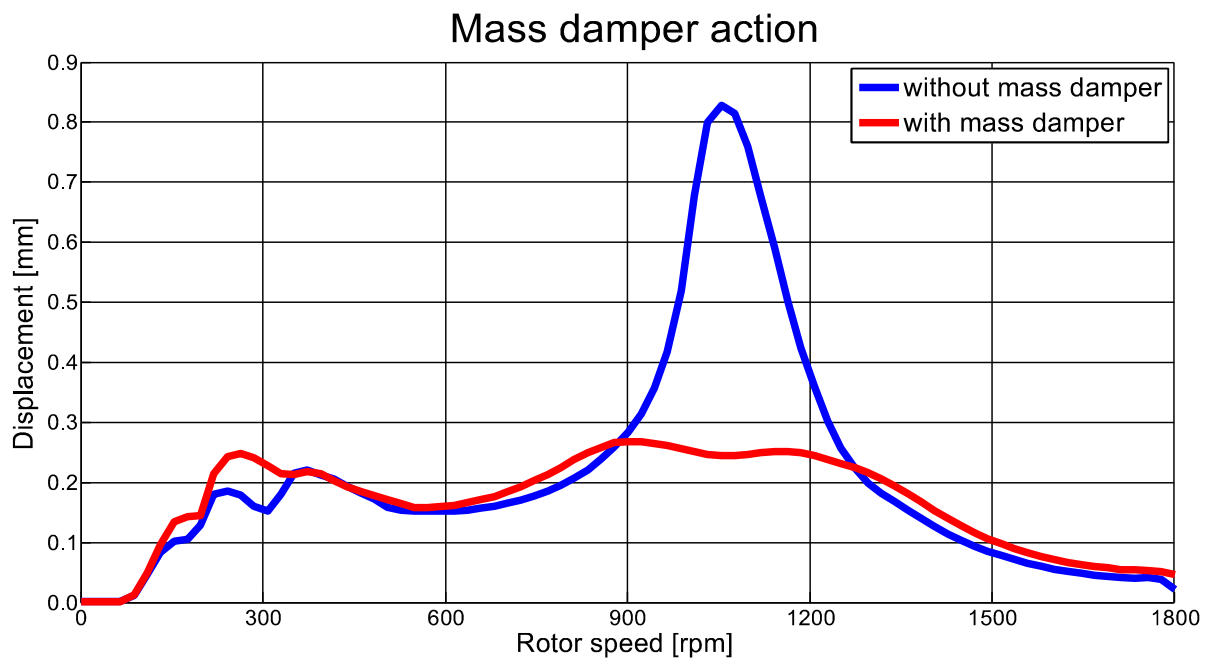
Type EMD21



## Results

In the following graph, the experimental frequency response of a machinery with and without mass damper is reported. The vibration reduction achieved by Eidos mass damper is 65%.

Only Eidos mass dampers allow vibration reductions higher than 60% on a wide frequency range.



## Mass Damper selection

| Code              | Size          | Frequency range | Application example                          |
|-------------------|---------------|-----------------|--|
| <i>EMD1-5</i>     | 1kg – 5kg     | 8 – 70Hz        | Small size machineries, household appliances |
| <i>EMD10-25</i>   | 10kg – 25kg   | 5 – 60Hz        | Mid size machineries, tool machines          |
| <i>EMD40-70</i>   | 40kg – 70kg   | 2 – 60Hz        |  |
| <i>EMD100-170</i> | 100kg – 170kg | 0.5 – 50Hz      | Big size machineries                         |
| <i>Special</i>    | >200kg        | 0.5 – 30Hz      | Special application                          |



*via Roveredo 20b, 33170 Pordenone, Italy*

*tel: +39 0434 507547*

*fax: +39 0434 504410*

[www.eidosengineering.com](http://www.eidosengineering.com)

[info@eidosengineering.com](mailto:info@eidosengineering.com)