



# ADVANCED

*Vibration Control Device with Amplification System*

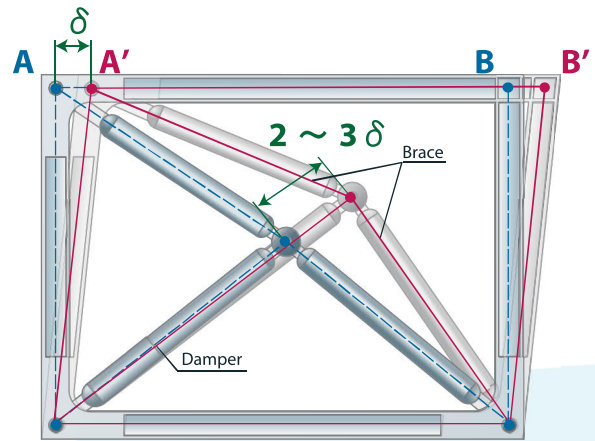


## Advanced Technology for Safer Structures

The displacement and velocity amplifying structure of the “ADVANCED Vibration Control Device” can reach the maximum performance of dampers to effectively protect structures from wind and earthquake induced vibrations.

## Outline of ADVANCED Vibration Control Device

The “ADVANCED Vibration Control Device” consists of 2 braces and 1 damper installed in a frame which is attached to the building structure. The 2 braces are connected by pins to the frame and to the damper with determined angles. With this arrangement, it is possible to induce a movement to the damper which is between 2 and 3 times the correspondent inter-storey drift of the building. Since higher displacements and velocities induced to an oil damper will lead to a higher amount of dissipated energy, the “ADVANCED Vibration Control Device” is an effective device to optimize the performance of dampers and, therefore, to reduce structural damage and building vibrations.



Displacement Conceptual Diagram

## Characteristics of the ADVANCED Vibration Control Device

### » Proven Reliability

The “ADVANCED Vibration Control Device” has obtained the general certificate no. CBL ID002-08 from the Japanese public Institution “Center for Better Living”. This certification corroborates the outstanding energy dissipation capacity of the device, and its ability to improve the seismic performance of both new and existing building structures.



### » High Quality Assurance

The main components of the vibration control frame are manufactured by Kawakin Holdings Group (ISO 9001 certified company), which has a long and successful track record on manufacturing and delivering devices for bridge and building structures. The exhaustive quality control standards applied to the device, as well as the after-sale service provided are highly appreciated by our clients.

### » Damper Performance Optimization

Through the amplification of displacements and velocities induced to the damper, it is possible to obtain an excellent damper response even when small vibrations occur. In addition, due to the optimization of the damper performance it is possible not only to decrease the size of the necessary dampers, but to reduce between 2 and 3 times the amount of required dampers when compared to the conventional methods.



### » Smart and Slimmed-down Design

The characteristics of the device allow for a reduction in the dimensions of its structural elements, i.e. steel pipes and cast iron frame. Moreover, it is possible to easily adjust the length of the braces, in case the device is installed in an existing building.



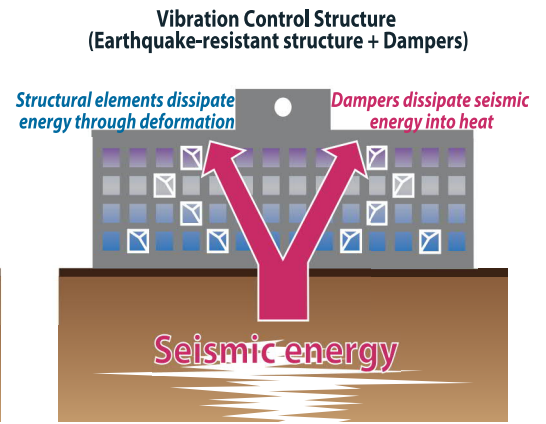
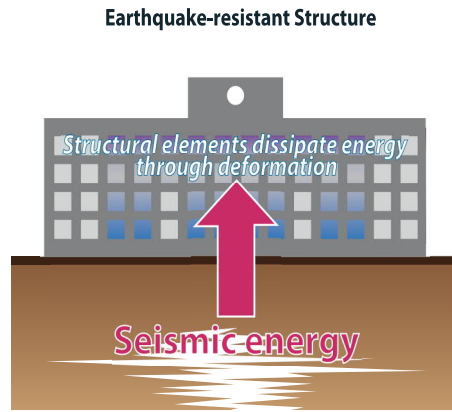
### » Maintenance Free

There is no need to replace the device even after a major earthquake. It is maintenance free, and it is only required to carry out visual inspections every half a year, and after important seismic events.



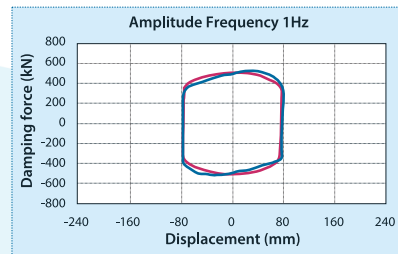
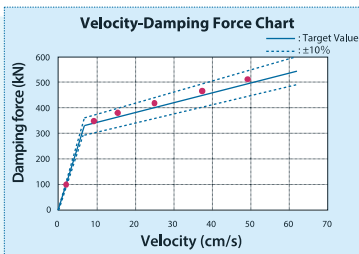
## Earthquake-resistant and Vibration Control Structures

An earthquake resistant building resists the seismic forces and dissipates energy from the earthquake through deformation and structural damage; while the dampers of a vibration control structure effectively dissipate seismic energy reducing the vibration of the building and the damage induced to its structural components. Vibration control structures reduce displacements and building accelerations, preventing furniture from falling and other non-structural damage.



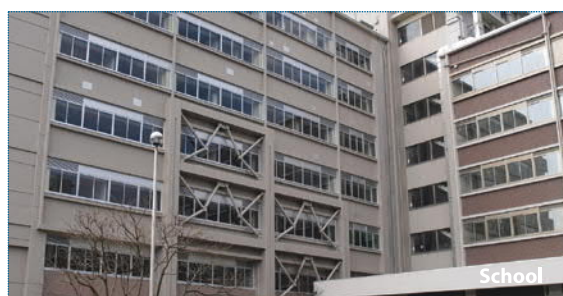
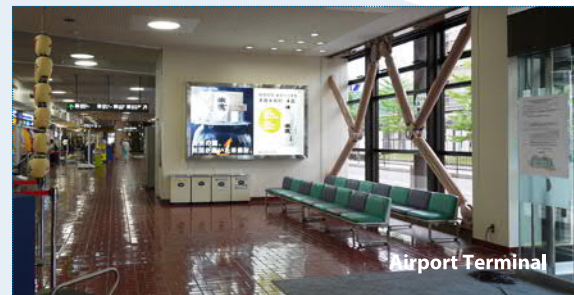
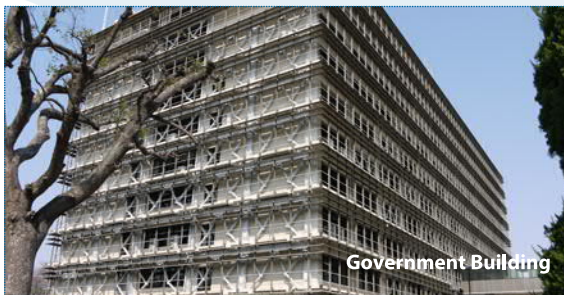
## Stable Damper Performance

Verification of the viscous damper performance is carried out by dynamic tests conducted on the devices before shipment.



## Application Examples

As of January of 2018, more than 3900 sets of the "ADVANCED Vibration Control Device" have been supplied in Japan.

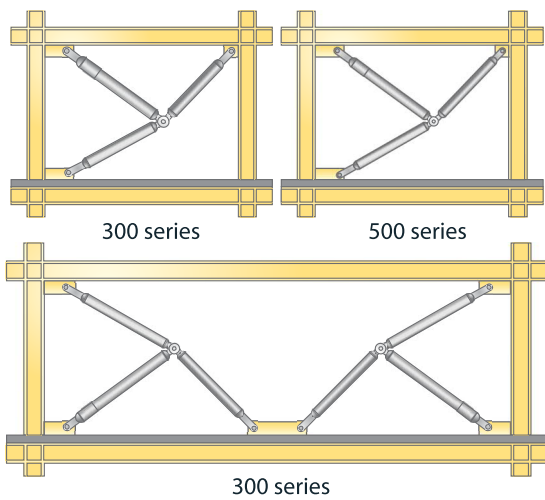


## From New Construction to Seismic Retrofit

The line-up of the "ADVANCED Vibration Control Device" consists of 4 series, with different maximum damping forces, designed to improve the seismic performance of new and existing structures. Because of its design flexibility it can be installed in longitudinal and transverse directions, between columns, in buildings with different floor heights, etc.

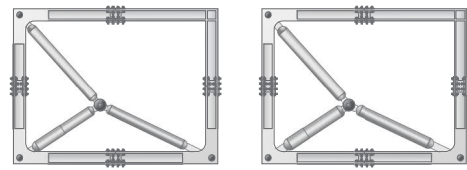
Series	Max. Damping Force	Damper Diameter	Brace Diameter
200	220kN	φ139.8mm	φ139.8mm
300	330kN	φ155mm	φ159mm
500	550kN	φ177mm	φ190.7mm
800	880kN	φ247mm	φ219.1mm

\*Damper standard stroke is ±110mm



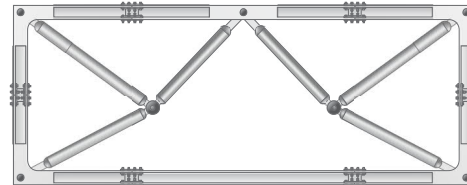
for new construction and reinforcement  
(excluding steel frames)

### Single Unit Type

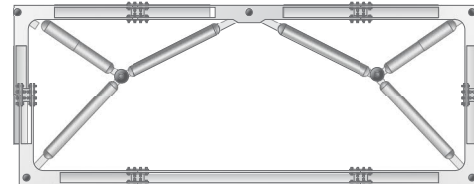


300 series

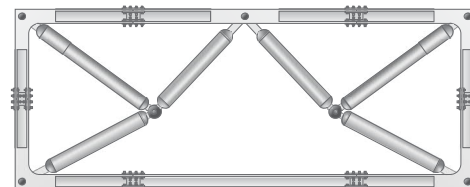
500 series



300 series Double Unit Type 1 (Normal Type)



300 series Double Unit Type 2 (Mansard Type)



500 series Double Unit Type 2 (Gusset Type)

for seismic retrofitting



**Kawakin Core-Tech Co., Ltd.**

Head Office : 2-2-7, Kawaguchi, Kawaguchi-city, Saitama, 332-0015, JAPAN

TEL: +81-48-259-1117 FAX: +81-48-259-1137

Email: info@kawakinkk.co.jp

Branch/Plant : Ibaraki / Tokyo / Osaka / Sendai / Sapporo / Vietnam

www.kawakinct.co.jp