



SEISMIC PROTECTION FOR STRUCTURAL ELEMENTS



Hysteretic seismic dissipaters.

Efficient, safe, economic.

VELATOPH®
SISTEMAS DE PROTECCIÓN SÍSMICA

PRODUCT CHARACTERISTICS.

Energy dissipaters reduce deformations and stresses produced by the action of winds and earthquakes by increasing the damping of the structure by up to 50%

Principle.

These devices, located at strategic points of the structures, allow reducing the structural response. Like base seismic isolation systems, energy dissipation devices have been widely used worldwide in the design of new structures and in the reinforcement of existing structures. They are cataloged within passive seismic protection systems and are in turn divided into:

- HYSTERIC DISSIPATERS-
 - ADAS
 - TADAS
 - Honey Comb.
 - Braces UNION

ADAS DEVICES (Added Damping and Stiffness)

ADAS devices are made up of a set of plates with a tapered or X shape so that the flow is uniform in height. The number of steel plates is variable allowing the heat sink to be adjusted to the needs of the structure in which they are placed. The main advantage of the X-shaped plate is that when it deforms, its deformation is transmitted evenly over the height of the plate.

ADAS devices are generally used in frame structures, the plates are designed to dissipate energy by creep deformations in bending.

The ADAS system provides greater damping to the structure and reduces acceleration and seismic forces. Stiffness is increased and the vibration period is reduced. TADAS devices
The TADAS heat sinks are made up of a set of triangular plates arranged flexibly out of their plane. It is very similar to the ADAS system. The base of each plate is welded to another rigid plate, being taken as an embedment condition, while the other end ensures movement in the vertical direction.

TADAS devices

The TADAS heat sinks are made up of a set of triangular plates arranged flexibly out of their plane. It is very similar to the ADAS system. The base of each plate is welded to another rigid plate, being taken as an embedment condition, while the other end ensures movement in the vertical direction.

With a relative displacement between the ends of the plate perpendicular to its plane, flexural plasticization of simple curvature is obtained. This device gives horizontal resistance to any floor drift, by bending deformation of the individual plates. For mild earthquakes, the device is designed to work in the elastic range, while for severe earthquakes the plates have inelastic deformations dissipating a portion of the input energy.

The number and dimensions of the plates are determined according to the demand of a particular application.

Benefits.

The effect of gravitational loads can be completely separated from the heat sink, using vertical perforations in the heat sink-counter-vent connection, so for large deformations the vertical displacements at that end are not restricted, so only flexural plasticity and response occur. Inelastic device is highly predictable.

Advantages.

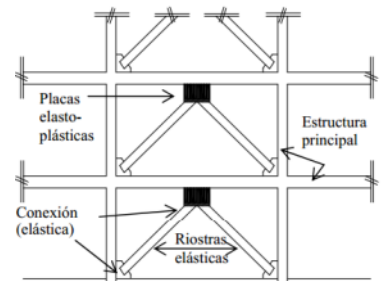
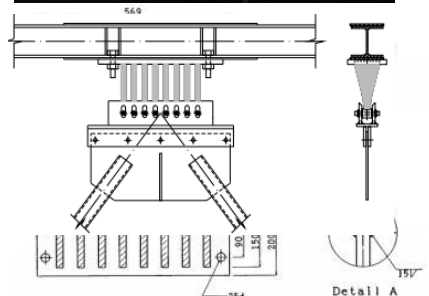
With the use of these devices the structure is capable of developing greater ductility and therefore reducing the devastating effect of a severe seismic event on the structural elements.

The efforts, accelerations and deformations induced by an earthquake in a structure with seismic dissipation systems can be reduced from 15% to 50% compared to a structure without a seismic protection system, managing to reduce damage to structural and non-structural elements.

These devices can receive a large number of cyclic loads and accumulate a large amount of plastic deformation without losing strength or stiffness.

Benefits.

- Reduction of damage due to severe earthquakes.
- Decrease in costs for post-earthquake repair
 - Less damage to content.
- Increased capital gain of the building.
- Perception of greater security by the user
- Cost reduction of the structure



VELATOPH®

SISTEMAS DE PROTECCIÓN SÍSMICA

PRODUCT CHARACTERISTICS.

Materials.

Velatoph® uses the following materials to manufacture its hysterical heat sinks:

- Plates that make up the body of the devices: carbon steel rolled according to ASTM A36.

In some cases and upon request, the following materials can be used:

- Neoprene type synthetic elastomer according to ASTM D412.
- Lead center with minimum purity of 99%*

Connection system

ADAS and TADAS devices can be supplied already connected to the back-venting system, which will avoid downtime on site. They can also be prepared for connection to the structure on site.

Corrosion protection

Velatoph® applies high quality corrosion protection to all its devices, so that they are not affected by the local environmental or terrain conditions where they will be used.

On request, Velatoph® can provide corrosion protection systems according to international standards.

Inspection and maintenance

Velatoph® hysterical seismic dissipation devices do not require preventive maintenance. The condition and position of the devices should be checked at regular intervals. Upon request, these inspections can be carried out by our technicians, reporting the results through technical memory.

Certification

Velatoph® is the first Mexican company to develop seismic protection systems, we are also the pioneers in developing a seismic protection system within the economic reach of small buildings such as houses. We are also participating in the first Mexican Norm of seismic protection, providing the methodologies for the calculation and design of prototypes, so that in the short term there may be regulations that allow builders and the general public to know in depth about the different methods that exist in the market to protect your assets and that of your clients.

Velatoph® currently manufactures its products according to the specifications of the ASCE 7 Code, in terms of protection and dissipation of seismic energy.

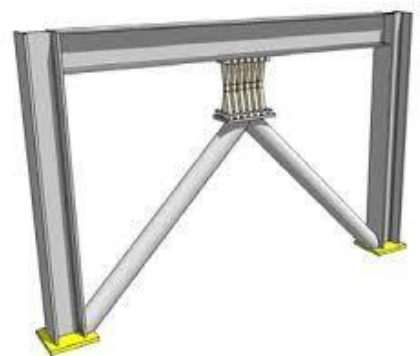
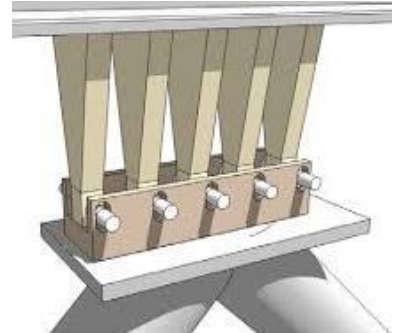
Essays.

If the client requires it, Velatoph® can carry out production quality control tests at scale, Velatoph® has collaboration agreements with the main seismic research institutes in Mexico. The tests carried out are usually based on the specifications guide for the design with seismic isolation of the AASHTO standard. At the request of the client, tests based on other codes can also be carried out.

Customer Support

Our specialists wait to give you the best seismic protection solution for your project.

For more information about our products and sales policies visit our website www.velatoph.com where you will find a wealth of information and resources to protect your assets from your customers.



VELATOPH®

SISTEMAS DE PROTECCIÓN SÍSMICA