



Vibration Damper

Hydro-Québec Vibration Damper

Controlling aeolian vibrations on overhead lines is a broad area of research, development and testing in which substantial technological progress has been achieved. This includes a new type of vibration damper developed by Hydro-Québec's research institute.

Marketed since early 2002 by the licensee, Helix Uniformed, this patented technology attenuates aeolian vibrations of conductors and is more robust than other damper models. It was developed by redesigning the spacer-damper's articulated structure to create a new damping mechanism combining two joints in one. This innovation reduces the damper's unsuspended weight and cost, while making it more compact.

Since 2002, more than 25,000 Hydro-Québec vibration dampers have been installed on lines belonging to the company and to other utilities worldwide.

Clear advantages over standard dampers

- > Better control of aeolian vibrations
- > Superior fatigue strength, increasing the service life of conductors and tower components
- > Maintenance and replacement costs reduced or avoided
- > More robust and durable
 - Superior strength under extreme climatic conditions (freezing rain, rime ice and strong winds) and in hostile environments (dust, sand and concentrated pollutants)
 - Superior robustness: no messenger cable to break, no weights to fall off
- > Comprehensive range of dampers for all types of conductors, OPGWs and conventional ground wires

Effective damping of aeolian vibrations

- > Elastomer cylinder damping mechanism working mainly in compression (very low shear stress)
- > Double joint enabling each arm to shift in angle
- > Built-in stops limiting joint movement and preventing excessive compression of damping cylinders

Galloping on test line

Background	Condor-type conductors covered with 63 mm of D-section artificial ice creating galloping conditions
Oscillations	Intense aeolian vibrations with a maximum antinode vibration of about 50 mm at about 10 Hz
Endurance	Standard dampers damaged after a period ranging from a few hours to two weeks Hydro-Québec dampers undamaged after more than eight weeks of continuous testing

Other characteristics

Material	Aluminum alloy (cast zinc weights)
Attachment	Standard bolted cable clamps or preformed spiral armor rods. Conductor and OPGW service life may be extended by installing spiral armor rods beneath the bolted cable clamp to reduce local stress and friction at the point of attachment.
Cable diameter	Models available to fit any cable diameter from 0.26 in. (6.6 mm) to 1.772 in. (45.0 mm)

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