



Hydro-Québec Interphase Spacer

Hydro-Québec TransÉnergie counts on innovative integration of leading-edge technology to ensure continuity of service over a reliable transmission grid. One example is the new interphase spacer developed by Hydro-Québec's research institute (IREQ) and Helix Uniformed.

After more than 1,000 hours of testing, the new Hydro-Québec interphase spacer has proved its performance in countering the phenomenon of galloping on IREQ's test line, withstanding compressive forces of up to 20 kN. On a trial basis, some one hundred Hydro-Québec interphase spacers have been installed on power lines high up in the Peruvian Andes. The tests have demonstrated that the interphase spacers reduce power failures.

Over 3,000 Hydro-Québec interphase spacers are now in service both on the company's power grid and on other grids worldwide.

An effective anti-galloping tool

Some transmission lines are subject to galloping—a strong, primarily vertical oscillation of overhead conductors when loaded with freezing rain, snow or rime ice and exposed to particular wind conditions. Studies and experiments by IREQ have helped to better understand this phenomenon and to design a new interphase spacer to control it. Galloping conductors may move too close to one another, causing a short circuit and tripping the line. Just over 5 m long, the interphase spacer keeps conductors apart with its two composite material insulators linked to one another by a cylinder whose length may be adjusted to suit the type of tower and distance between conductors. It is attached with specially developed preformed rod clamps that are light and easily installed.



Installing an interphase spacer

Advantages and specifications

The new spacer is versatile, adapting to the environmental, mechanical and electrical characteristics of the line. Its use reduces the number of towers needed when constructing new lines.

Besides their high resistance to vertical oscillations, Hydro-Québec interphase spacers have many other advantages:

- Tough, flexible and light (most weighing less than 100 kg)
- High fatigue strength and resistance to deformation under compressive forces of up to 20 kN
- Quick and reliable tool-free installation using spiral armor rods or bolted cable clamps fitted to the conductors

Specifications

Models	Twin-bundle spacer Single-conductor spacer
Material	Composite material insulators (custom-made) Aluminum alloy cable clamp and cylinder (custom-made)
Attachment	Innovative non-bolted attachment: Cable clamp with elastomer insert attached to the conductor using preformed spiral armor rods (bolted cable clamp on request)
Yoke plates (twin-bundle model)	Aluminum alloy yoke plate specially designed to compensate for the horizontal drift of the intermediate phase conductor
Dimensions	Technical details dependent upon customer specifications.

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