

Press Release

Date: January 2013
Enclosure: pic.
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Rapid Non-Contact Tension Force Measurements on Stay Cables

The calculation of tension forces is achieved with less work, more quickly and with the highest accuracy possible.

Cable Stay bridges, like the Deh Cho Bridge, John James Audubon Bridge, and the Skybridge continue to gain popularity in the structural engineering world. Construction of these bridges are indicative of individuals finding innovative ways to bypass unpredictable weather conditions, allow rapid transit, and ensure more reliability, addressing the transport needs of residents and visitors alike. The structures' appeal lies in the cost efficiency of construction as well as the amiable appearance of the bridges themselves, but neither of these items takes precedence over the stay cables, which hold the deck in place.

Polytec and Metro Testing Laboratories Ltd, BC, Canada have joined forces to facilitate the work of non contact tension force measurements. Metro Testing has years of experience performing structural data analysis calculating the tension force from vibration data. When combined with Polytec's ability to provide long range non-contact vibration measurements, based on a state-of-the-art laser interferometer, fast and accurate results are possible. This allows up to 10 cables measurements per hour. This productivity can't be achieved with traditional sensing methods and therefore should be the preferred method for bridge owners and bridge engineering firms. The Polytec/Metro Testing team was the driving force behind the cost-effective measurements of resonance frequencies and the tension force calculations of the Deh Cho Bridge.

In most cases, stay cables are not inspected from year to year and much older systems with cable systems containing grouted elements are not as corrosion resistant as once thought. Corrosion, slippage, settlement of the structure or part of the structure, and/or load imbalances can all have a negative impact on the lifespan of the structure. Other events like extreme heat or seismic movement can have a significant impact on cable force distribution, affecting the fatigue lifespan of the cables, and so, by extension, the lifespan of the structure. Due to ongoing funding constraints, expanding structure lifespan is a major objective of bridge owners.

Preventative measures and maintaining structures -- fixing issues as they arise -- is much more cost efficient in the long run. This is what makes the Polytec/Metro Testing partnership so important: taking steps to ensure the structural integrity (Tension Force) of the cables of the three aforementioned bridges so that, ultimately, all three will retain the utmost strength and safety for the extent of their life design.

Publication free of charge

For questions please contact
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Though the Deh Cho bridge and John James Audubon Bridge are newer than the Skybridge (completed in 1990), the public has surely reaped the benefits of all three structures. Individuals who long relied on ferries, or other means of traveling the long distances these bridges span, no longer have to worry about mechanical problems affecting travel or temporary closures due to maintenance. These bridges (and others like them) provide travelers with safe, reliable transport 24 hours a day, 365 days a year as long as they are maintained properly and slowly developing structural problems are detected early and addressed.

For more info please visit www.polytec.com/rsv



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