

# nVent LENTON Position Couplers



## NVENT LENTON COUPLERS USED IN AUSTRALIA'S KURILPA BRIDGE



Ray Cash Photography



nVent LENTON position couplers are designed to splice bars where the ongoing bar is restricted in its axial movement or cannot be rotated and length adjustability of the coupler is required.

Brisbane, the capital and most populous city in Queensland, Australia, has recently added an impressive new bridge to its skyline. Designed to link Brisbane city center to the arts precinct at South Brisbane, the bridge serves as an impressive 425-meter walking and cycling pathway across the Brisbane River.

The Kurilpa Bridge is a multiple-mast, cable-stay structure based on principles of tensegrity, an architectural and engineering system in which the structural integrity is a synergy between balanced tension and compression components. This produces a lightweight yet strong and stable structure.

nVent LENTON position couplers were used at the tie-down piers on each end of the Kurilpa Bridge to facilitate a direct connection between the foundation, pilecap and pier.

As the world's first tensegrity pedestrian and cycle bridge, it features an artistic array of cables and flying steel spars, an elegant colonnade, and tension ties, which create a three-dimensional appearance. Kurilpa Bridge offers impressive views of the river and features two large viewing platforms, two rest areas and an all-weather canopy spanning the entire length of the bridge.

Construction began on the bridge in October 2007 and it opened on October 4, 2009, in time for Queensland's 150th anniversary celebrations. The bridge is comprised of more than 1,500 cubic meters of concrete, 550 tons of steel and extensive cabling in excess of 6.8 kilometers in length.

Paul Stathis is the Project Manager at Baulderstone Pty Ltd., who worked on this prestigious assignment. Because of his long-standing relationship with U.S.-based nVent, Stathis selected nVent LENTON position couplers (P13L) for use on the main bridge superstructure.

"The position couplers were used at the tie-down piers on each end of the main bridge superstructure to facilitate a direct connection



The Kurilpa Bridge is the world's first tensegrity pedestrian and cycle bridge.

between the foundation, pilecap and pier," says Stathis. The couplers were precisely located at the top of the piers to ensure a direct connection for the tension-uplift bearings (spherical pot bearings) located between the piers and the deck structure to constantly hold the back-spans of the bridge down. In fact, the back spans of the bridge are holding up the main span of the bridge structure.

"The couplers ensure a direct tension load is transferred from the foundation to the deck, pulling down the sides in order to pull up the center of the bridge," says Stathis.

nVent LENTON position couplers (P13L) are designed to splice bars where the ongoing bar is restricted in its axial movement or cannot be rotated and length adjustability of the coupler is required. Spliced bars behave as continuous lengths of reinforcing steel bars by providing full strength in tension, compression and stress reversal applications. The position couplers feature a unique self-aligning taper-threaded design to provide continuity and

structural integrity. They develop higher tensile strength than lap splicing and are quick and easy to install.

Marcus Edwards, Engineer New Products with the Australian Reinforcing Company (ARC), has worked with nVent LENTON for more than 10 years to provide the optimum nVent LENTON coupler to numerous clients in Queensland.

"I continuously look for ways of improving constructability and efficiency in major projects," says Edwards. "Coupling systems, such as nVent LENTON, are always part of this process."

ARC is quick to recommend nVent LENTON's products in key projects, such as the Kurilpa Bridge, for a variety of reasons. "nVent LENTON products are low profile, having the least impact on concrete cover," explains Edwards. "They have positive connection properties enhanced by radial tension in the coupler and they are easy to install, including out of alignment tolerance. nVent LENTON is a well-engineered, elegant product that suits a variety of applications."

Boulderstone's Stathis also knew working with nVent LENTON on this high-profile project would be a good fit. "I've been working with nVent and using nVent LENTON products for over 10 years and have found the team at nVent LENTON to be very responsive." In addition, the position couplers were selected for "their simple adaptability for use on-site and timely availability of the products."

Another significant factor for Boulderstone when selecting nVent LENTON is how the company manages its customers' needs. "nVent LENTON addresses client concerns by conducting its own testing and approvals," says Stathis. "This means that a contractor like Boulderstone does not have to convince an Authority each time they use a product that it shall suffice."

"I'm impressed by nVent's vast array of products and their commitment to continual improvement to offer products that adapt to the changing construction environment," Stathis adds.

Because of its dramatic and attention-grabbing design, the Kurilpa Bridge has won a wide variety of awards, including the celebrated Engineers Australia Gold Award, the Structural Engineering Steel Building Design Award and was also highly commended for the infrastructure and mining sector Steel Design Award.

nVent LENTON has developed a long-respected position throughout the Australian market as a major coupler system supplier. As evident by the impressive Kurilpa Bridge project, it's clear that nVent LENTON products can integrate into complex and challenging projects just as easily as in simpler, less structurally demanding projects.



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