

Dayton Superior Offers Support to Floating Bridge

SUMMARY

Washington State's Department of Transportation (WSDOT) has begun construction on the restoration of the SR 520 Pontoon Bridge. The 1.42-mile long floating bridge is the main route for approximately 115,000 cars crossing Lake Washington each day. To maintain this essential link of the SR 520 corridor, 23 large pontoons and 10 smaller stability pontoons will be built and connected, with the roadway built atop the pontoons.

Because product quality and product strength would be critical elements in the project, Kiewit General, the project's contractor, will utilize Dayton Superior heavy duty stainless steel coil and ferrule inserts, along with a number of Dayton Superior heavy forming accessories in the pontoon construction process. Each of the large pontoons are 360' long (approximately the length of a football field), 75" wide and nearly 30' tall – the largest ever built in Washington. Kiewit worked closely with Dayton Superior on a design-build plan for the pontoons and relied on Dayton Superior for recommendations on products that could handle the size and scope of the project.

CUSTOMER

Contractor: Kiewit General

PROJECT

- Pontoon Bridge
- Seattle, Washington

CHALLENGE

In the construction of any pontoon bridge, maximum load is a crucial consideration. Pontoon bridges are constructed so that each pontoon is able to support a load (including the load of the bridge) equal to the mass of water displaced by the pontoon. The roadway built atop the pontoons must also be able to support these loads, yet be able to remain light enough so as not to affect the carrying capacity. Therefore it is imperative that products that are able to support the load capacities required, be incorporated in every aspect of the construction process.



Casting bed for the largest pontoons ever built in Washington State.



The project utilized custom-built precast forms for the pontoons.



Coil She Bolts, Cast Coil Wing Nuts, Heavy Hex Coil Nuts, Coil Rod and Braces were used in the construction of the precast pontoon forms..

SOLUTION

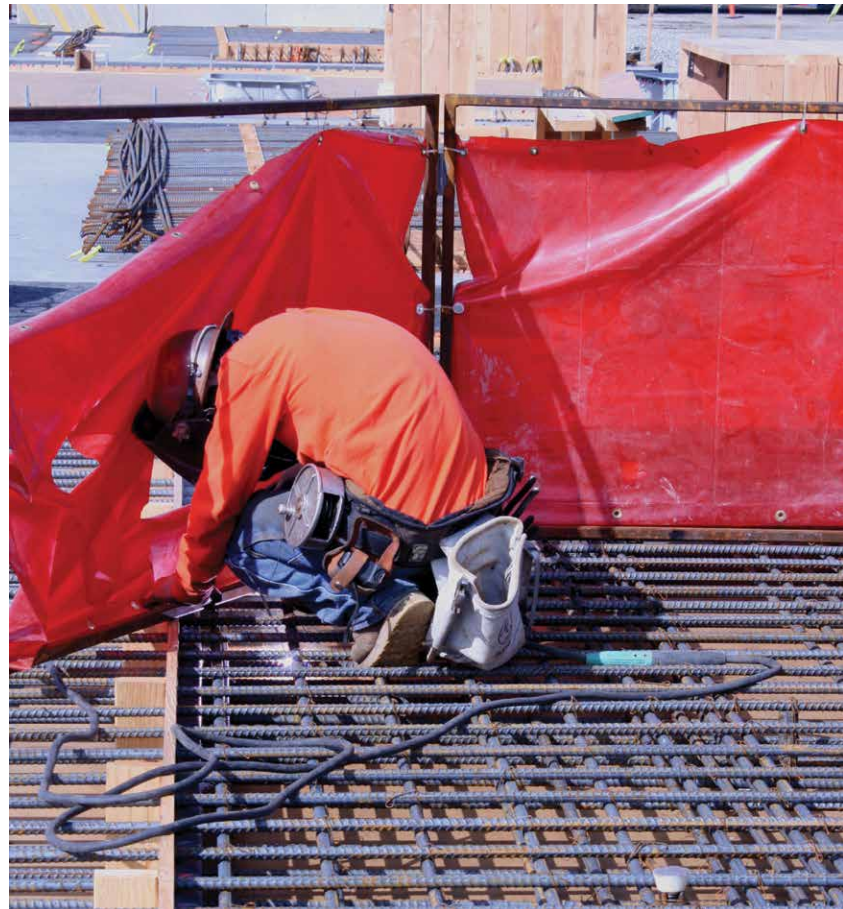
Kiewit General turned to Dayton Superior for innovative and expertly-engineered products for each phase of the pontoon bridge's construction.

In the development of the pontoon concrete forms, Kiewit General chose Dayton Superior's Coil She Bolts, Cast Coil Wing Nuts, Heavy Hex Coil Nuts, Coil Rod and Braces to build custom precast forms and brace the pontoons. To lift and connect the precast pontoons, Dayton Superior's stainless steel Ferrule Loop Inserts, stainless steel 4-Strut Inserts and Threaded Plastic Plugs were utilized. Also used in connecting, lifting and towing the precast pontoons, Kiewit General selected Dayton Superior's Heavy Duty Coil Ties, Heavy Duty Screw-On Coil Ties, Expanded Coil Inserts and Plastic Screw-On Cones.

"Dayton Superior was selected due to their reputation in the marketplace for manufacturing a quality product. The Dayton Superior product selection was further solidified by Dayton's willingness to help with engineered designs that would not only meet our requirements but also achieve the desired results at the best cost savings to Kiewit," explained Brandon Wise, Pontoon Engineer with Kiewit General. "The partnership between Masons Supply and Dayton Superior worked in tandem to go the extra mile for us to ensure that we had a solution, not just a product."

RESULTS

- Dayton Superior served Kiewit General as a single-source provider for a significant amount of heavy forming products.
- Kiewit General called upon the expertise of Dayton Superior to assist on the engineering designs and make appropriate product recommendations for the pontoon construction
- Dayton Superior designed custom sized braces to meet unique, limited working area environment of the pontoon fabrication facility.
- Dayton Superior tested Kiewit's current product inventory to ensure that forming products met the excessive loading demands and specifications.
- Dayton Superior's manufacturing team coordinated product packaging and delivery schedules to meet the accelerated build schedule helped Kiewit remain on track during initial build phase.
- The Dayton Superior regional team successfully orchestrated the numerous projects within the initial pontoon build phase by working with the many engineering teams within Kiewit.



A worker utilizing Dayton Superior's stainless steel 4-Strut Inserts in pontoon construction.

RESOURCES

Learn more about Dayton Superior's heavy forming products at www.daytonsuperior.com.

Dayton Superior F64 Ferrule Loop Insert Product Specifications:

- Manufactured by welding a wire loop to a steel ferrule
- One closed end, while the other end is drilled and tapped to accept an NC threaded bolt
- Provides a strong attachment for structural elements

RELATED PRODUCTS FROM DAYTON SUPERIOR

- Dayton Superior Coil Nuts for concrete forming
- Dayton Superior Thread Bar Taper Ties
- Dayton Superior Flat Washers for concrete forming