OLI MVE1530/6 200Hz High Frequency Vibrators were fitted to precise locations across the exterior surfaces of the moulds to ensure they had the required influence on the concrete as it was being poured.

PERFORMANCE BY DESIGN

Quality Equipment a Critical Factor in Delivering Quality Results

As the Managing Director of leading Western Australia precast concrete specialist PERMAcast, Alberto Ferraro is passionate about the quality of the products his company produces. From smaller precast panels, beams and components, through to full size bridge decks, Super T-beams and array of other specialist structural components, everything manufactured at the company's Cardup WA facility is produced with a focus on quality.

"Together with safety, our primary focus is on quality," Alberto said. "After all, our reputation is attached to everything we produce, and as they say, it takes years to build a reputation and only a minute to ruin it."

"What's more, with so many of our products going into high profile major projects - including some of the State's biggest infrastructure projects - our clients need to be certain that the products that we're providing for them are engineered and manufactured to meet the specified 50- to 100-year design lives. Anything less simply isn't an option," Alberto added.

Not surprisingly, this focus on quality, coupled with the expertise and capabilities of the PERMAcast team, has not only seen the company gain an enviable reputation for excellence, it has also seen PERMAcast grow to become one of Western Australia's leading specialist precasters across the Oil & Gas, Mining & Resources, Civil & Commercial Construction and Infrastructure sectors. Indeed, the company has provided precast components to many of Western Australia's most high-profile projects, including Perth's Optus Stadium, the Gorgon Gas Project, the Southern Seawater Desalination Plant, the Mitchell Freeway Extension and Elizabeth Key in the Perth CBD to name a few.

Importantly, this quality edict encompasses all aspects of its operations – from the design, engineering and manufacturing processes, through to the construction materials, and the equipment being used at the precast facility.

"As is the case with any engineered manufacturing process, getting the required results relies on every aspect of the process working as it should, including the materials and equipment," Alberto added. "With the engineering tolerances on these products being so tight, we need to be absolutely certain that every stage of the manufacturing process is working exactly as it needs to be."

With that in mind, when it came to selecting the vibration equipment used in the manufacture of the massive precast elements for the Northern Section (Stage 3) of Perth's billion-dollar NorthLink WA project, PERMAcast selected a range of high-performance equipment from OLI.

Precast on a massive scale – together with a total of 126 T-Beams weighing up to 24 tonnes each, the project also required the manufacture of 55 large Super-T-Beams, measuring up to 48m in length, up to 6 metres in width, and weighing as much as 207 tonnes.

Supplied locally by OLI Australia's exclusive WA distributor Inquip, OLI's range of specialist vibratory equipment for concrete construction is highly regarded both throughout Australia and internationally for its robust reliability and outstanding performance. In fact, OLI is a worldwide leader in vibration technology, with the OLI® brand being synonymous with specialist vibration technology for over 55 years.

"The NorthLink WA projects required a large number of very large components, including a total of 126 T-beams, measuring up to 24m x 2m and weighing an average of 24 tonnes, as well as a further 55 large Super T-Beams, measuring up to 48m in length, up to 6 metres in width, and weighing as much as 207 tonnes," explained PERMAcast Engineering Manager Roy Yiu.

"What's more, all of these components needed to be engineered and manufactured to very exacting standards in an extremely tight timeframe to meet the project's construction schedule," he added.

With the 181 precast components travelling an average of 80 km form the precast facility to the constructions site, delivering the NorthLink WA project also represented a major logistics exercise, particularly for the 55 Super-T-Beams.

To meet the tight manufacturing schedule for the NorthLink WA Stage 3 components, PERMAcast constructed two specialist moulds for the smaller precast beams, as well as an additional six large moulds for the bridge decks and Super T-Beam components.

As is the case with any large precast mould - particularly those with complex geometries and an intricate network of reinforcing steel - eliminating voids and ensuring the concrete is consolidated throughout the moulds and around the reinforcing steel is of paramount concern. Ensuring the concrete vibrators are placed in all the required locations across the mould, and that the vibrations being generated are at the required frequencies during every stage of each pour is critical.

The team from Inquip and OLI Vibrators Australia worked together with PERMAcast's engineering team to develop a purpose-designed vibratory solution for the massive precast moulds. Inquip supplied and installed an array of OLI MVE1530/6 200Hz High Frequency Vibrators, together with a number of OLI VSD Converters with Remote Controls. The vibrators were fitted to precise locations across the exterior surfaces of the moulds to ensure they had the required influence on the concrete as it was being poured.

"When you're dealing with so many large components in such a tight timeframe, there is no room for error or equipment malfunctions, especially during the pours," Roy Yiu said. "This is particularly true when it comes to the vibratory equipment."

"Without the vibrators running exactly as specified, you run the risk of the concrete not flowing through the mould and leaving voids. This, in turn, can render the entire component unusable, which is not only expensive and time-consuming, but can also put the entire construction schedule at risk of delay," he said.

"We're extremely happy with the performance of the OLI vibrators and equipment," Roy Yiu added. "The units performed extremely well and didn't miss a beat across the 12-month production schedule."

"Perhaps most importantly, the equipment delivered the results we needed, which played a major role in ensuring that were able to deliver high quality finished products that met all of our client's specifications," he concluded.

Preparing to lift one of the beams into place along the Northern Section of NorthLink WA.

ABOUT NORTHLINK WA

NorthLink WA will provide a vital, state-of-the-art transport link between Morley and Muchea in Perth's outer north. It will reduce travel times and congestion, and provide significant productivity benefits to the economy, industry, motorists and local communities.

The $1.02 billion NorthLink WA will also link to Gateway WA, servicing regional traffic movements to commercial and industrial areas such as Malaga, Kewdale, Perth Airport and the Perth CBD.

Jointly funded by the Federal and State Government, NorthLink WA is a key element in guiding a stronger and more prosperous economy for Western Australia.

The third and final contract (the Northern Section) stretches 22 kilometres from Ellenbrook to Muchea (57km north of Perth).

Works along the Northern Section are nearing completion, with the final completion scheduled for early 2020.