TENSA Equipment Case Study

Engineering solutions provider, TENSA Equipment, was recently awarded two grants under the inaugural NERA Innovation Voucher program, which supports small and medium enterprises (SMEs) develop innovative solutions to technical problems in the energy resources industry. NERA spoke to TENSA Equipment Managing Director, Derick Markwell, about their Roborigger and Active Heave Compensated Pedestal solutions, and the benefits of partnering with an end user during the development phase.

Which of your solutions was successful in securing NERA Innovation Vouchers? What's so innovative about them?

TENSA Equipment was fortunate to be awarded two NERA Innovation Vouchers – one for the Roborigger, and another for the Active Heave Compensated Pedestal (AHCP) – to help with commercialising these products.

Roborigger is a battery-powered, wireless controlled device which uses gyroscopic and inertial forces to accurately rotate and orient loads. It was originally conceptualised for orienting and holding wind turbine blades stationary in the North Sea while being attached to the hub of the turbine. While we are still pursuing this application, we are now focussed on its application to cranes, where there is an average of three fatalities every year in Australia and many more injuries and near misses due to people being in the vicinity of crane loads. Roborigger features remote release electric hooks so that a load can be lowered and positioned without the need for personnel to land and unhook it.

Because it has the potential to minimise health and safety exposure and cut costs by reducing the need for rigging manpower near the load, there has been a lot of interest in the product, which we are currently trialling. With 200,000 cranes worldwide, this presents a significant market for Roborigger, but we envisage it being used to transfer pipe between offshore pipelay vessels in the oil and gas industry.

The second NERA Innovation Voucher was for our AHCP solution, which allows a gangway to be connected between a large and a smaller vessel to allow safe transit. The AHCP eliminates almost all of the relative motion between two vessels by enabling the gangway on the smaller vessel to match the motion of the larger vessel. It can be used to transfer people from one vessel to another, or from a vessel to a fixed structure, such as a high wharf. AHCP can also support a range of other applications including A-frames, launch and recovery systems, winches, cranes up to 3 tonnes safe working load, and small coring rigs.

The market for large AHC gangways is quite large in the North Sea, where they are installed on big supply vessels. We saw a gap in the market at the smaller end, where there is potential to use high speed boats to transport people to floating production facilities or offshore platforms in the oil and gas industry instead of helicopters, and from vessel-to-vessel, for example cruise ship to expedition boat, in the tourism industry. We looked for solutions and found that while there are gangways at the small end of the market, they are not heave compensated.

We developed the AHCP by adopting a suite of existing technologies to provide an independent heave compensated platform on which to locate a suitable gangway, driven by an electric AHC winch. This allows small gangways to be used on lightweight, high-speed vessels so that people can safely transfer in seas up to 2 metres, at least 90% of the year. We believe its impact could be quite significant for a range of industries.

What are the advantages in TENSA working with the end user?

Being a heavily research and development focussed organisation, working with end users is something TENSA does whenever possible because of the benefits it brings to everyone involved. For example, when we were developing the AHCP we realised that, because it's such an expensive product, we would have to involve a customer in the process because we just couldn't fund it ourselves. We approached a number of potential customers operating in offshore Western Australia to see who was willing to collaborate with us.

We received a lot of interest and we've chosen two parties to work with: one end user and a vessel supplier. This collaborative model allows us to further develop the product and allows the other two parties to provide the appropriate infrastructure for it to work optimally.

How do you envisage your products entering the supply chain?

The only way TENSA's Roborigger and AHCP solutions can enter the supply chain is by working with potential customers to develop it to their requirements, and then providing it to those customers. It's just too expensive to build one then try and market it to customers who will probably say that it isn't quite what they are looking for.

One of the main reasons we applied for NERA's Innovation Vouchers was because we felt it would give our new products more credibility and exposure to additional potential customers. The grant money is a bonus that helps to keep the project rolling but it's getting our products known to more potential customers that is so valuable at this stage of development.