



KOREAN POLICE COMMITTED TO HAMILTON JET

New Zealanders might have little interest in a Korean Coast Guard (KCG) patrol boat if weren't for the fact that one of them now features the biggest water jet propulsion system ever built in this country.

The first pair of HamiltonJet HT1000 water jets, each with an impeller diameter of 1.2m, were delivered to Korea early in 2008 and fitted to a 55m patrol boat. The boat was launched and sea trials conducted in November and the vessel exceeded all target speeds during trials.

Each of the Korean Coast Guard 300 tonne class vessels is fitted with a pair of fully controllable HT1000 water jets, as well as a pair of slightly smaller HM811 boost jets which have no steering or reverse control.

All four water jets are driven by 3700hp MTU engines and provide a maximum boat speed of over 36 knots (66kph). At full speed each HT1000 water jet pumps 11cubic meters of water per second.

The company has been supplying water jets to the Korean Coast Guard for many years and it currently has over 120 vessels fitted with its water jet units.

But a much larger water jet than those in the existing product range was required for this project to allow the vessel to patrol at over 20 knots on the outer jet units alone.

The central boost jets are only used for high speed operations. The HT1000 was designed specifically for this project and is a different hydrodynamic design from the company's other water jet models.

Technical manager for Hamilton, Phil Rae, says the pump design for the HT1000 was developed using Hamilton's in-house

computational fluid dynamics (CFD) software, and a complete scaled prototype unit was tested in the company's high speed test boat and hydrodynamic test facility.

"For the full scale unit, the design, structural analysis, simulation and production tooling development was almost exclusively computer based," Mr Rae said. "This allowed for 'virtual' trial assembly and seamless manufacturing integration."

In manufacturing the HT1000, the company has expanded its aluminium and stainless steel casting facilities, and developed new casting technology to improve product quality and reduce manufacturing time. Several other companies across the country were contracted to carry out machining and other parts of the manufacture for the early builds, as the Hamilton jet factory was at full capacity during this time. In future the bulk of the manufacturing will be done in house.

To date the company has delivered four ship sets of HT1000 water jets to the shipyard in Busan, Korea. Contract negotiations are underway for additional water jets to be delivered over the next two years. The company is also assessing the viability of other HT series water jets for workboat projects around the world.

Company spokesman Tony Kean says each set of four jet units is worth about US\$1 million (\$1.97 million), with four sets already shipped, orders have been confirmed for another three this year and negotiations underway for three more sets for next year.

Because of their special advantages of manoeuvrability and shallow draft capability, water jets are particularly useful in the type of coastline the Koreans Coast Guard boats work in.

"They could be in deep water or shallow water, and with the



The size of the jet makes our engineer look small



Stern view – jets exposed

jets you're guaranteed that you're not going to lose a propeller or bend a rudder or anything like that which would affect the boat's performance," Mr Kean said.

The jet stream that powers and steers the vessel is a big advantage in these waters where cheeky smugglers are prone to drop nets or ropes overboard in a bid to snag chase boat propellers.

Commercial workboat projects such as the new Korean contract are a boon to a company like Hamilton which is possibly better known for its presence in the recreation market.

The company had a turnover of more than \$60 million last financial year and employs about 300 people at its Christchurch manufacturing plant.

Although the recreational market has been hit hard by the recession Hamilton is still forging new business and opening up in new markets.

Mr Kean says work is down in the factory and some temporary workers had to be laid off but there are still a lot of good enquiries and sales leads being pursued.

For Hamilton the recreational market accounts for less than five percent of business. Several of the company's products are sold into the workboat market, including pilot boats, crew supply, passenger vessels and patrol and rescue boats.

The new jet unit has opened up many doors for the company with potential buyers and workboat owners worldwide impressed by the sheer size of the new unit and the awesome power it produces.

An office has now been opened in Singapore, and Asia is being looked on as a key market over the next few years.

"Because it's a new product and a larger one, it's given us as much as anything a real good-feel factor that we are still leading the way in terms of the development of water jets." ⚓



Phil Rae and Mike Hamilton discuss the HT1000

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