

Australian Industry **OzWELD**

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WTIA National Diffusion Networks Project (NDNP) funded by the Federal and State and Territory Governments and industry



SUCCESS STORY NUMBER D09: HIGH PRODUCTIVITY WELDING SUPPORTS FUTURE SHIPBUILDING – *European expert links our aluminium shipbuilders to expertise*

Background – Shipbuilding in Europe

In May 2006 WTIA presented a series of workshops around Australia to introduce the outcomes of the NDNP for the Defence Industry Sectoral Project (ISP). The workshops were supported by ISP members ADI Garden Island, Tenix Defence Marine Division, Centre for Maritime Engineering (CME), Australian Submarine Corporation (ASC) and the Land Engineering Agency (LEA) and introduced an expert speaker from Europe, Mr Richard Boekholt.

Richard Boekholt is Chairman of International Institute of Welding Work Group (IIW WG) Shipbuilding and has extensive experience in shipbuilding and manufacturing productivity.

Over 140 people attended the workshops that were presented at seven venues as far afield as Darwin and Hobart. Delegates were particularly interested in the facts and figures about welding technology in general and European shipbuilding procedures for innovation, organisation and planning in relation to the status of human resources.

For many shipyards and engineering facilities the implementation of a technology change from conventional to high technology is difficult and has to be done carefully. Generally middle or small size establishments do not have the staff resources or knowledge required for technology changes.

Technology Issues

The workshops also introduced to industry a range of Technical Guidance Notes (TGNs) developed as an output of the WTIA's NDNP, which is supported by State Governments and industry around the country. Issues such as the control of distortion and accuracy control of ship building and methods for improving the fatigue strength of welded structures are both covered by TGNs which are available as free downloads from the WTIA website www.wtia.com.au.

The use of laser technology in European shipbuilding and its advantages, disadvantages, equipment and benefits were discussed, and Australian research (through the Cooperative Research Centre for Welded Structures) on in-situ weld cladding technology and Rapid Adaptive Programming using Image Data (RAPID) was also introduced.



56.8 m Patrol Boat for the RAN (Austal Ships)

Automation and Robotics

Of particular interest, and following on from previous WTIA workshops and overseas expert presentations (see Success Story D06) were discussions on improved productivity in ship building, and in fact all heavy engineering, through utilisation of automation and robotic technologies.

Success in smaller establishments in Europe is being achieved with a multi-functional approach, where different processes and functions can be carried out by one flexible multi-functional robot system. The need for a holistic approach to such innovation, and the critical role of personnel was emphasised.

Australian Aluminium Shipbuilders

Mr Boekholt visited a number of companies during his time in Australia, including WTIA members Incat Tasmania Pty Ltd in Hobart and Austal Ships in Perth which manufacture aluminium ships for the domestic and military markets.

Both companies place investment in technology and engineering high on their priority lists for reasons of competition and increased production output. The current restrictions on production capacity due to a lack of welders make robotic welding an attractive and a realistic objective.

Ongoing dialogue has been established for both companies with European experts in automated production systems such as Kranendonk Production Systems based in the Netherlands.

Outcomes

Through the resources of its OzWeld Technology Support Centres Network, the WTIA has introduced the Australian shipbuilding and heavy engineering industries to the latest European trends in innovation for productivity improvement.

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