

Project participants

Project co-ordinator



SMEs



Research Organisations

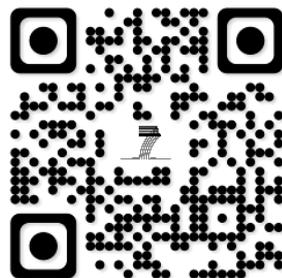


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More details and news available at project's website:

www.mobiweld.eu



FP7: The future of European Union research policy

Mobi-Weld



Development of low force mobile friction stir welding system for on-site marine fabrication.



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The challenge

The European shipbuilding industry is a dynamic and competitive sector both in the European Union (EU) and on a global scale. It has great importance from both an economic and a social perspective, and also involves other areas including transport, security, research and the environment.



The EU promotes its development and addresses increasing competitiveness issues, since current world-leaders, the far-east (especially Japan, Korea, China and Taiwan) and the US are rapidly improving the quality and performance of their vessels – primarily through the adoption of aluminium in ships.



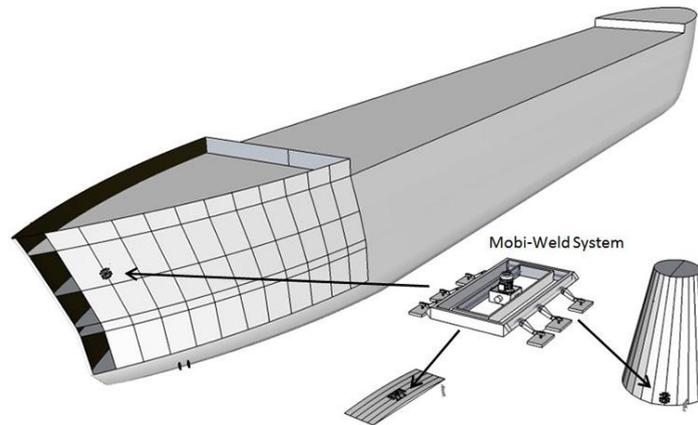
The Mobi-Weld project will improve the productivity of the European ship building and fabrication market to enable improved competitiveness against low-labour rate competitors.

It will also accelerate the adoption of aluminium vessels (through lowering the cost of manufacture), which enable significant improvements, lower running costs (lower fuel consumption) and lower CO₂ emissions.

The concept

Friction-Stir Welding (FSW) is a solid-state joining process, developed and proved in 1991 by The Welding Institute UK. FSW uses a third body tool to join two faying surfaces. It has many economic, environmental and safety advantages over conventional welding, as well as it is capable of overcoming some limitations of conventional fusion welding techniques.

The Mobi-Weld project will develop a prototype, mobile FSW system, which will be designed and constructed for use in final fabrication/assembly in a shipyard. The Mobi-Weld system will also include modular construction to create the possibility of further exploitation in other industry sectors.



Schematic of potential operations of the Mobi-Weld:

- [Left] Joining sections of panelling to a ship
- [Centre] Fabricating a sub assembly panel section
- [Right] Joining of assembled panels to form a ship's funnel

The objectives

The Mobi-Weld project will address four major technical challenges:

- Development of a range of 'floating-bobbin' FSW tools suitable for welding the aluminium alloys and thicknesses identified for this application.
- Integration of an automated joint tracking system to identify the weld path which is integrated with the positioning system to present the tool in the correct position and orientation to the component joint line, ensuring weld quality.
- A crawler system which can transport the welding head across large section areas of panels and be deployed within a shipyard environment.
- A suitable control and interface system, to integrate the subsystems and allow simple operation/programming by shipyard personnel.

