



Manufacturing

How you can use friction stir welded aluminium panels for your shipbuilding project

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I just finished our part of a shipbuilding project in which the shipyard wanted to design the structure using aluminium extrusions and friction stir welded panels. The project reaped several benefits that could be interesting for your own marine designs.

Aluminium is strong but light, thanks to its low density. This means the vessel you are designing can save 35-to-60 percent in weight, compared with steel. Lighter boats also reduce the need for ballast and enable higher speeds, which is terrific when you are building high-speed ferries, defense vessels, yachts or even offshore support vessels.

Less weight leads to lower vessel fuel costs and lower emissions. It also allows you to increase payload.

These are facts that my customer knew ahead of time. But the more we talked, the more we talked about other ways that aluminium solutions could benefit his project. And it struck me that you as a marine engineer should know about these, too.

Benefits of friction stir welding of aluminium components for marine vessels

Friction stir welding (FSW) is a solid-state joining process that I recommend for both small and large shipbuilding projects because it can help you reduce assembly time – or speed up the construction process, whichever way you look at it.

- It saves you money by eliminating the man-hours you need for traditional MIG welding. It also improves the quality of the weld, compared to MIG welding, and thereby eliminates rework.
- Lastly, using FSW panels as a completed component simplifies your build process by reducing the amount of measuring and cutting that needs to be done in the shipyard.



Aluminium expertise important for shipbuilding projects

When you want to use aluminium in your shipbuilding project, you should also make sure you speak with a partner who knows your business. Talk about what you want. You can win a lot of benefits that you might not have considered.

I'm thinking about components that are:

- Standardized
- Connectable
- Supplied ready to fit, like joining part A to part B, thereby reducing risk of "human error"
- Utilizing standards that can reduce your investment cost
- Optimized with regard to weight, using finite element analysis (FEA) to identify where weight can be saved and which areas need to be strengthened

Interested in learning more?

If you are interested in learning more about the usage of aluminium in marine and offshore applications, then please contact Hydro and we will put you in touch with the right expert.

