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Lean transformation using hybrid-laser arc welding in ship panel assembly

Many shipyards use the classical submerged arc welding (SAW) or metal active gas (MAG) welding technologies during the assembly of ship panels. However, since the advent of applying advanced hybrid laser arc welding in avant-garde shipyards, it is expected that other shipyards will eventually apply this new technology. Since panel assembly is one of the core production areas in any shipyard, investments in technology improvement could reap significant savings. In this paper, a case study analysis of panel assembly in a shipyard using the traditional welding methods is made, where the duration time and man-hours are recorded. The replacement of SAW with the latest hybrid laser arc welding is demonstrated using a lean manufacturing methodology for shipyards. The resulting reduction in work man-hours is significant to argue for eventual replacement with the new technology.

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