

FRP STRUCTURES FOR PEDESTAL CRANES IN HARBOR AREAS

CLIENT	COMPANY SPECIALIZED IN CRANES AND LIFTING DEVICES
LOCATION	TRIESTE AND CAGLIARI (ITALY)
USE	PEDESTAL CRANES IN HARBOR AREAS
PRODUCT	TAILOR-MADE SERVICE PLATFORMS AND ACCESS LADDERS FOR CRANES
SERVICE	DEVELOPMENT OF THE SOLUTION TOGETHER WITH THE CLIENT, SURVEY OF THE MEASUREMENTS ON SITE, FEASIBILITY STUDY, DRAWINGS AND STRUCTURAL CALCULATION REPORTS, ACCURATE PLANNING OF THE SOLUTIONS FOR TIME OPTIMIZATION, INSTALLATION SUPPORT



OBJECTIVE

The client needed to lighten the overall weight of four harbor pedestal cranes to meet a specific request coming from one of its customers.

Since modify the structural part was not an option, the only possible solution was to work on the accessory structures, i.e. service platforms and access ladders.

These structures are normally made of steel, so the first challenge to tackle was the feasibility of using another material.

The chosen one must be lighter and have a better corrosion resistance in marine environment, since the cranes were to be placed in harbor areas. Lastly, the structures needed to be perfectly inserted into existing cranes' booms and masts, so it was necessary to develop a tailor-made design.

SOLUTIONS

Thanks to its lightness and corrosion resistance, fiberglass was considered the best material for the purpose. The client contacted M.M. for the development and they put at his disposal their extensive experience in the field of composite materials.

After a technical feasibility study to target possible structural criticalities, M.M.'s technical department developed the design of FRP access ladders and FRP service platforms of four cranes: M.M. used a reverse engineering process, so the start points were the steel structures used before.

Due to the interconnection between structures, the preservation of the kinematics and the presence of systems on board it was necessary an intense and detailed design process, supported by 3D modeling, that was shared with the client. In order to minimize the assembly time, the structures were provided as preassembled and M.M.'s team supported the client during the installation.

Thanks to accurate planning, the deadlines were met and the project was completed within the scheduled time frame.