Design and Operation of the ICON™ Dynamic Positioning System

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Abstract

Rolls-Royce has a large portfolio of products for the marine market, and is now also becoming a major supplier of dynamic positioning systems. The Poscon™ joystick system from Rolls-Royce has been supplied to the offshore market over the last 30 years. A new version of the Poscon™ joystick was developed and released in 2004. Subsequently the development program for the new Icon™ dynamic positioning systems was started. The first Icon™ DP systems were installed in 2006, and sales has at present reached more than 95 DP systems. This paper presents the main design principles, technical design and features of the Icon™ dynamic positioning systems from Rolls-Royce. During the development process of the new joystick system, awareness of key system aspects evolved. Four design principles were established for the Icon™ DP development program: Performance, safety, simplicity and proximity. The first two are obvious; the vessel shall stay in position with god performance in a safe manner. The simplicity and proximity principles emerged in the analysis of existing solutions, rules and guidelines.

Design Principles These design principles are both individually essential and related. For instance, safe vessel operation requires good DP system performance and simple user interface with close proximity to the user. And, close proximity to operator devices makes operation simpler for the operator. The proximity and simplicity principles do not only apply for the design of operator environment, but are fundamental for the technical design of the whole system and its components. The importance of the principles is illustrated in the context of the next chapters that presents how Rolls-Royce with the new Icon™ system has met the challenges with respect to

- bridge design,
- user interface,
- system architecture and components,
- integration,
- simulation and test

Furthermore, some examples of integrated solutions are presented.

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