

Luxury cruise ship relies on fully assembled enclosure solutions to meet target deadlines

Construction of one of the largest passenger ships in the world started in September 2013 in France and should be completed by mid-2016. The design and construction will be carried out by a major European ship builder at its facilities in France and will take up to 10 million man hours during the three years of its construction. Such an enormous vessel requires a huge amount of infrastructure, all of which must meet the demanding marine specifications.

Once completed the luxury passenger ship is expected to weigh almost a quarter of a million tonnes and will have cost over \$1,000 million to build. It will be over 300m in length and boast a displacement figure which is more commonly seen amongst military aircraft carriers. Thanks to its impressive size it will carry over 6,000 passengers and 1,200 crew members, and will require 2,700 cabins and 28 suites as well as enough restaurant, night clubs, swimming pools and theme parks to keep all the guests fed and entertained.

The ship builder has developed a modular design for the cabins which will be built separately and then installed on the vessel according to the build plan. This saves on overall construction time as, with such a huge number of cabins to be built, it is better this process is completed off site. Each cabin can be individually specified, if necessary, and each one is built to the same exacting standards required for marine operation.

In order to achieve the target build cost, it is important to design common systems and components where possible and so achieve economies of scale. The process begins with an initial prototype which has to be validated by the client before mass production can begin. By using a small group of skilled craftsmen to design and build the cabins, the quality and reliability can be carefully monitored and maintained.

The design of each cabin requires an electrical distribution combined with an enclosure, which can be easily modified and installed to meet individual requirements. All the enclosures will be required to have an IP65 rating as a minimum, with those being used in areas other than the accommodation specified to IP66. With many enclosures requiring customisation, it is essential that the IP ratings are maintained once the enclosures have been machined and installed.

Away from the cabins, the electrical distribution will also be required across the rest of the vessel for lighting and small power. In many cases the distribution on one deck will be repeated on the next, so for a vessel with 16 passenger decks there will be a requirement for a large number of enclosures, all of which will have to meet particular marine approvals, such as Lloyds Register or Bureau Veritas.

To make the installation work as efficiently as possible, the proposal is to use enclosures which have been pre-fabricated to include terminals and glands. In this way, the time consuming exercise of building the enclosures can be completed prior to arrival at the shipyard and thereby reducing the amount of time required to install the electrical systems.

With such a large number of enclosures required, around 4,000 just for the cabins, combined with the customisation and pre-wiring requirements, the ship builder has sought the specialist supplier, Spelsberg UK, to provide a complete range of products that can be delivered to suit the build schedule. As the UK's largest supplier of non-metallic enclosures ex stock, Spelsberg also offers complete customisation on nearly all of its products as well as in-house installation.

A spokesman for the ship builder comments: "In order to provide adequate protection to electrical connections, the enclosures which are to be used on this project need to be extremely tough. Being a maritime application it is important that the enclosures provide suitable ingress protection while also offering corrosion resistance from the abrasive salt particles present in the water and the air.

"Spelsberg worked with us to provide enclosure solutions when we had designed the enclosures so fully understand our requirements. They are carrying out the customisation and installation work in-house which means we don't have to worry about multiple suppliers and know that the supplied product will match out design specification"

The project will see each cabin equipped with an IP65 distribution board from the AK range, which contains a choice of boards from 14 to 70 way, constructed from either polystyrene or polycarbonate. Combined with the extensive range of accessories and screwless PE & N terminals, these enclosures are designed to offer a robust, reliable and efficient installation, which can be modified to suit each application.

In all, there will be approximately 4,000 enclosures destined for the cabins alone, where they will be built into the fabric of each cabin before it is transported to the shipyard to be assembled together on the passenger decks. In addition to this, there will also be a large number of enclosures from the AL range, which comprises a variety of aluminium, powder coated enclosures, rated to IP66, as well as a quantity of TK enclosures, also IP66 rated, equipped with terminals and glands.

Chris Lloyd, General Manager for Spelsberg UK, adds: "It's fantastic to be involved on such a large project, which will employ a variety of products, all designed to survive the marine environment. Over the years we have put a lot of effort into R&D and expanding our product range to ensure we can offer a suitable solution for almost any application. Our key strength is our ability to work with the customer to develop a solution rather than simply supplying a product."

About Spelsberg

Spelsberg is one of the largest manufacturers of electrical enclosures in the world. With over 4,000 enclosures available as standard and further customisation possible, it offers solutions for almost any application.

With the largest supply of non-metallic enclosures, ex-stock in the UK, its products are often available for delivery within 24 hours; customisation is possible on any product, including bespoke entries, engraved corporate logos or fitted terminals, within 48 hours. Products can be ordered direct from Spelsberg or from most leading supply specialists including RS, Rapid, Farnell and CPC.

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