Safe enclosures for rough seas

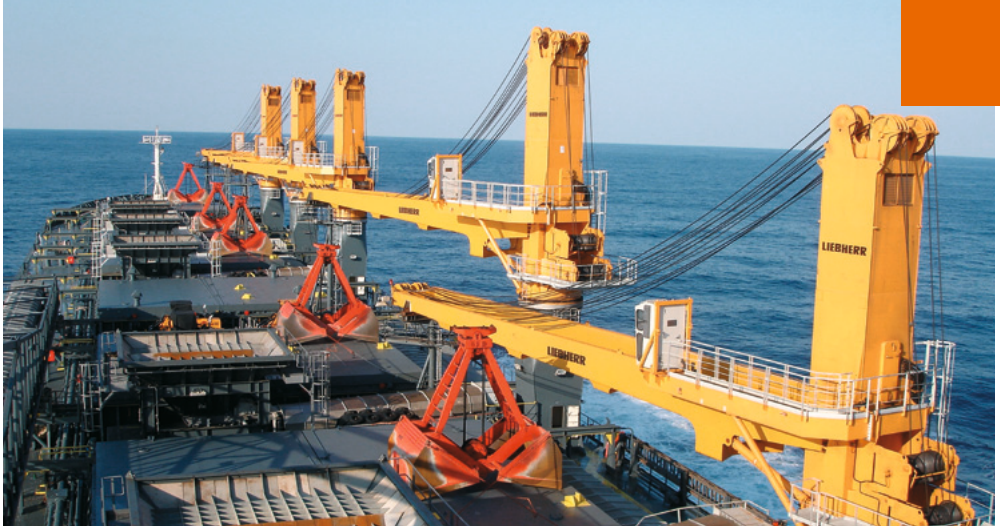
The range of classical ship's cranes includes cable-guided and cylinder luffed on-board cranes as well as grippers, bridge and heavy duty cranes (photo: CBW series ship's cranes for container handling)

Liebherr uses Weidmüller's sturdy distribution enclosures to defy the harsh environmental conditions for its ship, offshore and dockside cranes. With their corrosion resistant surface, absolute seal and Ex approval, Klippon® stainless steel enclosures are ideally suited for use in marine applications.

Alpine heights and sea spray do not mix? That is not the case with Liebherr. The construction equipment manufacturer delivers application-specific cranes for cargo handling from its base in the Austrian town of Nenzing. Liebherr's range of ships cranes are designed to cover the needs on board all types of ships including the ability to lift heavy loads. The offshore industry is supplied with individually made custom offshore cranes. For bulk cargo handling and seaborne coverage there is a wide range of pontoon and barge-mounted floating cranes. Additionally, Liebherr Port Equipment has a product range which offers versatile solutions for every type of freight handling in ports. "To cope with the extreme environmental conditions found in our ship, offshore and mobile harbour cranes we need sturdy distribution enclosures that are not affected by saltwater, wind, sun, or dust. They also need to be able to cope with shock and vibrations," explained Michael Oberhuber, strategic buyer of electric components at Liebherr, when describing the particular requirements of the target sector. "The optimal solution was found in the Klippon® TB-MH stainless steel enclosures from Weidmüller. Their solid quality and the possibility to meet many requirements with just a few versions convinced us that we should use the Klippon® range."

Corrosion-resistant and totally sealed

The distribution enclosures are installed on the cranes to collect and selectively pass on electrical signals between the controller, sensors and motors. The enclosure units are permanently exposed to salt spray mist, dirt and metallic dust. As these environmental influences are literally flung at the enclosures, they are made from high-quality stainless steel (1.4404/316L) with an electro-polished finish. This process smoothes



For efficient handling of all types of bulk goods, Liebherr offers a comprehensive range of pontoon and barge-mounted floating cranes for use on barges or transshippers (photo: CBG series bulk cargo cranes)

The range of offshore cranes includes cable and rocker-luffing cranes (photo: MTC series offshore cranes)

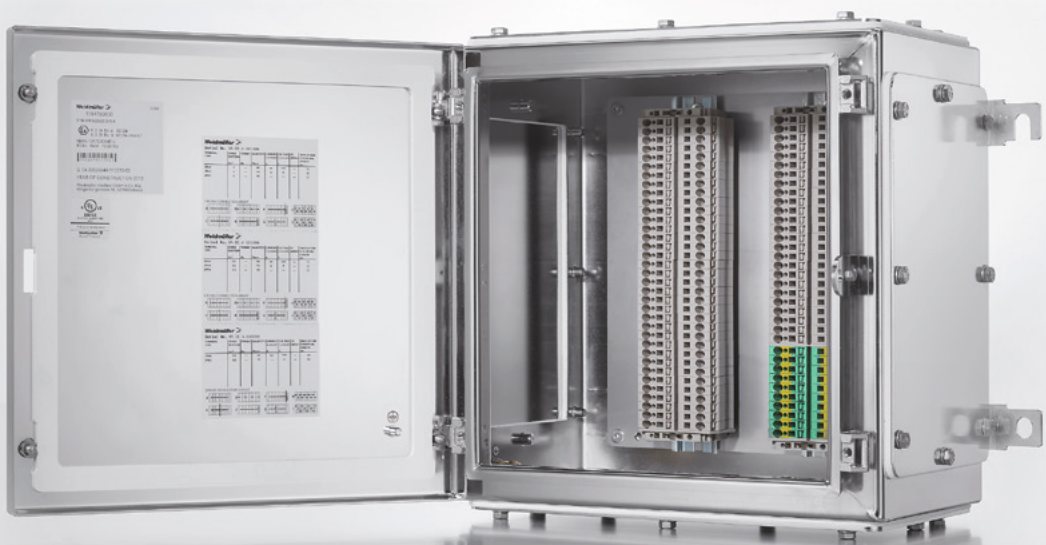
the surfaces so that contaminants cannot even stick to the enclosures. In this way, any corrosion is prevented.

"To ensure that the enclosures are perfectly sealed we use a high-quality silicone seal which fits perfectly to the enclosure's contours. Thanks to the screw fastenings around the enclosure, there is symmetrical compression of the seal which ensures that the enclosure is perfectly sealed," explained Stephan Rücker, Weidmüller's enclosures portfolio manager. "The spacers on the hinge also ensure we have a definite pressure on the seal. When our customers open the enclosure again – even if this is after a very long period of time – the seal is intact and springs back into its original position. When the enclosure is re-closed, the sealing effect remains consistently reliable. The compression protection is assured as the seal functions permanently."

A further contribution to the sealing, even under extreme environmental conditions, comes from the internally-threaded sockets that are welded to the flange plates in the enclosure wall. With this process Weidmüller protects against leakage. The removal of blind rivet nuts and additional sealing materials minimises the effects of mechanical shock, too high torque and vibrations on the seal of the internally-threaded sockets. "For additional quality control, we carry out a computer-aided under-pressure leak test on the finished enclosures," Rücker continued. "In this way, we can deliver our enclosures with consistent and unconditional high quality levels."

Minimum number of versions, maximum protection

"We were impressed by the high quality of the Klippon® enclosures which we saw being made at Weidmüller's production site," recalled Oberhuber. "The decisive factor for us was the possibility to reduce the number of enclosure versions we used thanks to the special services Weidmüller offers. For example, we can use one distribution enclosures with feed-through terminals – this can be used in three different applications thanks to its certification which includes Ex approval. This offer significantly reduced our planning effort." All Klippon® stainless steel enclosures are tested and approved in compliance with the latest international standards, including ATEX and IECEx according to EN60079. They are therefore ideal for use on oil rigs and on the dockside.



The labels on the inside of the enclosure cover show the certification of the Klippon® distribution enclosure for three different application areas