

11 November 2015

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Compact crane for Kurtz

Wire rope hoists travel between crane bridges

Mechanical engineering company Kurtz Ersä required a new crane to lift larger and heavier components into a new milling machine. It needed to lift 16 instead of the previous 5 tonnes and to travel on the existing crane runway. The lifting height and restricted clearance above the crane bridge also played a part. Stahl- und Kranbau Oeder, one of STAHL CraneSystems' partners, developed a customised low-headroom crane with an unusual design.

Kurtz Ersä produces particle foam and casting machinery at its plant in Kreuzwertheim. The powerful machines are used all around the world – from low-pressure casting of engine blocks to pre-expanding and shape-moulding helmets and shoe soles. Kurtz Ersä relies on 235 years' experience, well-trained personnel and ultramodern machinery to produce these high-precision machines. At the beginning of August 2015, Kurtz Ersä commissioned a new travelling column milling machine that works to 0.017 mm accuracy over 10 m and with which larger and heavier components can now be processed. However neither the existing crane nor the crane runway were designed for the required lifting capacity of 16 tonnes. Designing a new 16 t crane for the existing crane runway proved to be more difficult than expected and posed insoluble problems for some crane builders.

On the one hand, the limited clearance between crane runway and ceiling played a role, on the other the specifications for the lower edge of the load hook which could not collide with the milling machine's spindle motor. Specialist for customised cranes, Stahl- und Kranbau Oeder from Eckental in Franconia, South Germany, found the optimum solution: "The crucial point of the system was definitely the restricted installation situation and the existing crane runway which we could not reinforce," Rudolf Lang remembers, an engineer from Stahl- und Kranbau Oeder, one of STAHL CraneSystems' certified partners. Oeder supplied a customised crane with a headroom of only 943 mm from the upper edge of the

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wire rope hoist to the lower edge of the hook, that utilises the lifting height up to 236 mm below the crane runway and still manages with the restricted space above the crane runway. "The starting point was a standard CraneKit from STAHL CraneSystems with two 8 t wire rope hoists from the compact SH series – together with our motto: When space is tight, we're the people you need," Rudolf Lang says. His solution is based on a number of off-standard designs that would not be possible with a standard crane. "We had to devise a special construction for the crane bridge," Rudolf Lang explains. "On this crane, two SH wire rope hoists with modified crabs travel on rails mounted inside the bridge girders. Only this feature together with altering the distance between the bogie endcarriages made it possible to build such a compact crane." The load is distributed onto coupled crane endcarriages with a total of 8 wheels so that the maximum load capacity of the crane runway is not exceeded. The load actually suspended from the hooks appears on the display of the radio remote control. The crane is also equipped with the safety features necessary for tandem operation. This can be activated via the remote control and enables lifting heavy and long workpieces safely. Norbert Jonas too, Kurtz Ersas's production manager, is more than satisfied with the new crane. "You need creative engineers like Rudolf Lang and his colleagues to design a crane with these specifications – a remarkable achievement and a technically convincing crane. We'll certainly get in touch with Stahl- und Kranbau Oeder for future projects."

Photo material (lead and detail photos):



The customised crane is equipped with two SH wire rope hoists each with 8 t S.W.L., which in tandem operation can lift even long loads safely.

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Restricted conditions: the existing crane runway and the low ceiling left Stahl- und Kranbau Oeder very little space for the new crane.



Ingenious: the compact wire rope hoists travel on a customised crab between the box girders.



Stahl- und Kranbau Oeder gained valuable centimetres with this design.

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943 mm headroom ... seen from the side, the wire rope hoists completely disappear behind the crane bridge, only the hooks are visible.