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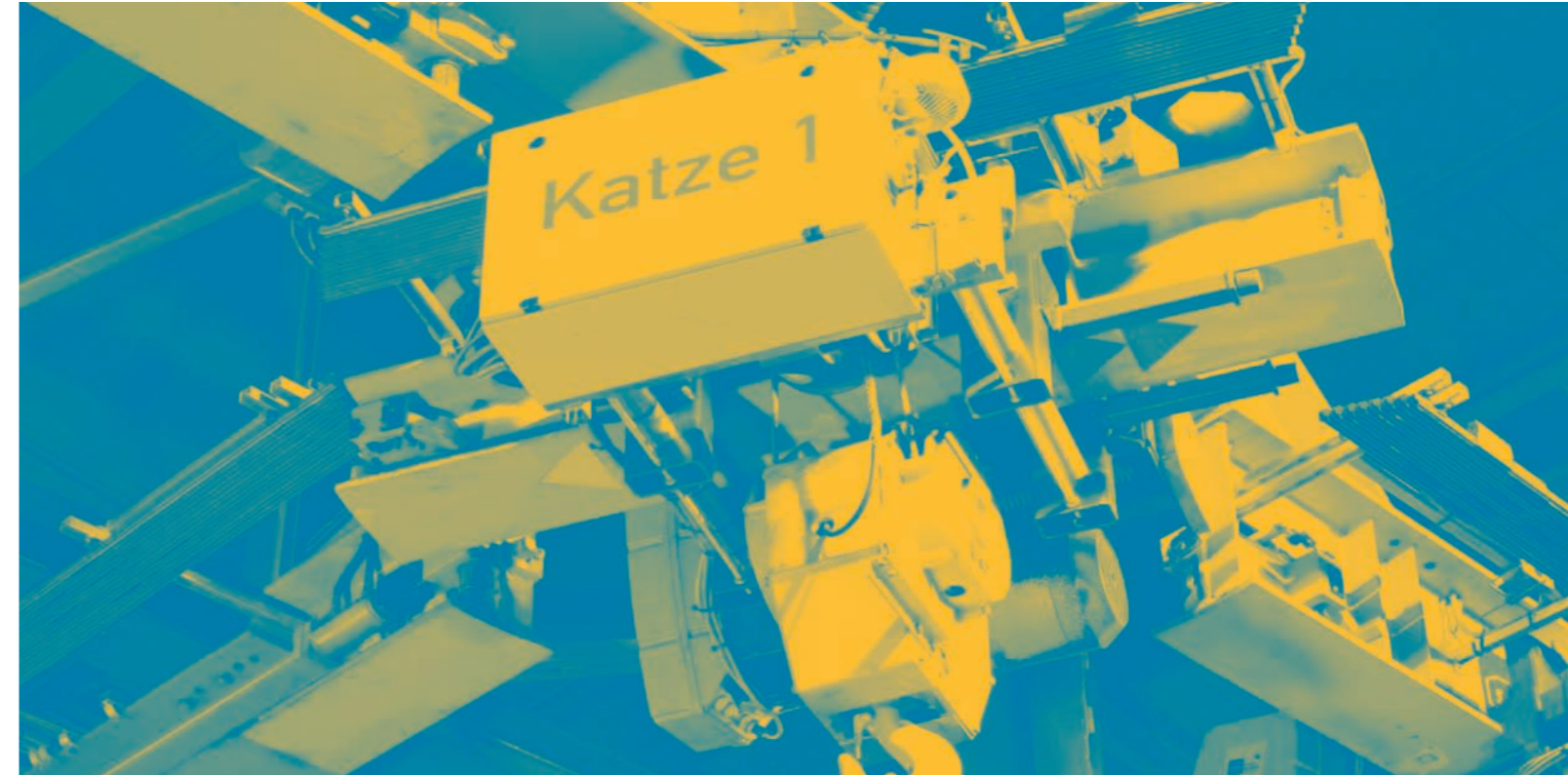
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Modernisation of blasting cabin

Georg Funk Iron Foundry, Aalen/Germany

Project completed August 2006 _ **Hoists** 2 electric wire rope hoists, type SH 5025-20, each 7 t S.W.L. _ **Load group** 2 m in acc. with FEM _ **Load hook** Electrically rotating load hook _ **Load summation** Automatic load summation to max. 10 t live load _ **Turntable** Electrically driven turntable for 13 t live load _ **Operation of system** Radio remote control with integrated control for turntable and transfer

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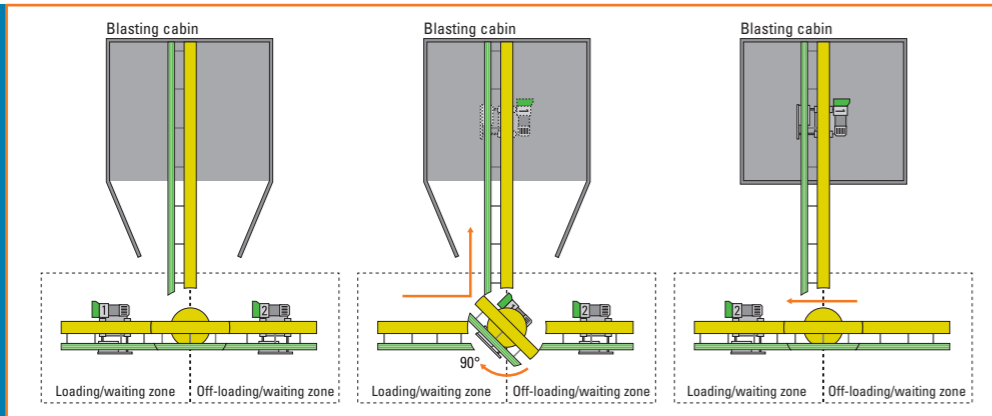
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Lifting technology | Drive technology | Control technology



Utilising a turntable enables two hoists to interact to transport pieces to be blasted into the blasting cabin.



Starting situation In the course of modernising their lifting systems, the Georg Funk Iron Foundry in Aalen found that urgent action was needed in the blasting cabin and the blow room. Although the production technology permitted single items up to a piece weight of approx. 6t to be cast, previously blasting these cast pieces caused great difficulty. Only lifting systems with a maximum S.W.L. of 3.2t were available in the whole blasting cabin and the adjoining blow room. To enable this bottleneck to be bypassed, the decision was taken in 2006 to plan all lifting systems in the blasting cabin and blow room for an S.W.L. of at least 6.3t.

Requirements Pieces were previously transported to the blasting cabin via a curved runway using two manual trolleys, in future it was to be supplied by two hoists with an S.W.L. of 10t each. Apart from this, the hoists were to have powered travel and be taken up automatically by the blasting cabin control when they entered the blasting cabin. The manual switch point was to be replaced by an electric and a solution adapted to the production cycle be achieved. A further requirement was that the new system should fit into the space occupied by the old one. Raising the roof or extending the building were excluded for structural reasons. Furthermore, the time-frame for modifying the system was limited to 14 days.

Realisation With this remit, the engineers of our STAHL CraneSystems branch in Stuttgart set out to find a solution. After several project discussions on site with the client and the companies involved, a system solution optimally adapted to the cycle of the production process was drawn up. Instead of the curved sections used previously which were positioned by a manually operated switch point, a turntable with a maximum S.W.L. of 13t, driven electrically by a roller chain, was used. The space previously needed for the curved sections could thus be utilised for the new switch point. The existing structures needed extensive reinforcement due to the statics of the blasting cabin. This comprised reinforcing the supports and completely replacing the structural steelwork for the hoisting equipment. In addition, extensive alterations to the feed line for the pieces to be blasted were needed.

Lifting technology The spur runways are now equipped with two type SH50 wire rope hoists, each with a nominal S.W.L. of 10t. Due to the statics of the blasting cabin, in the area where the goods to be blasted are brought in and taken up the maximum total load of the two hoists is limited to 10t. However using two type SH50 hoists could theoretically result in a maximum load of 20t being lifted. It was thus necessary to design an

intelligent control which permits a maximum total load of 10t and yet can easily be serviced by in-house personnel. This was achieved with the aid of STAHL CraneSystems' field-proven condition monitoring systems in combination with conductor line signal transmission. The wire rope hoists were set to a maximum S.W.L. of 7t to rule out any static overload of the system. If one wire rope hoist reaches the maximum S.W.L. of 7t, the load measurement of the second wire rope hoist kicks in at 3t and disconnects the hoisting motion. Communication between the two wire rope hoists is by means of conventional conductor lines. The hoisting motion is not released until the load has been set down and the hoist thus off-loaded. The two wire rope hoists and the turntable are operated using standard radio remote controls. If a hoist with material to be blasted enters the blasting cabin, from a defined point it is automatically taken over by the blasting cabin control. During the blasting process, the wire rope hoist is moved automatically by its electrically powered drive to one of three positions in the cabin at a speed of 2.5 m/min. The second wire rope hoist is off-loaded at the set-down point (off-loading/waiting zone) during the blasting process and then moved by the operator to the take-up point (loading/waiting zone). When the blasting process has been completed the wire rope hoist must be released from the blasting cabin manually by radio remote control and moved to the off-

loading zone via the turntable. It is not possible for both wire rope hoists to move onto the turntable simultaneously.

Result The system, designed specifically for the production flow, was implemented solely using standard components from STAHL CraneSystems, and installed and commissioned within 14 days. Structural requirements, dismantling the existing lifting technology and converting the blasting cabin were a challenge that was surmounted to the customer's complete satisfaction thanks to STAHL CraneSystems' own highly qualified service and erection personnel. Where previously two persons were required to supply the blasting cabin, the system is nowadays fully supervised by one person. And not to be ignored, the new system has improved safety at work as the pieces to be blasted no longer need to be offloaded from a crane and loaded onto the manual hoists.