

Distance protection system

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in Performance Level PL b, PL c and PL d

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Distance protection system

The application or the building statics may make distance protection for crabs and/or cranes necessary. Nowadays state of the art technical developments allow for distance protection systems whose structure and operation are convenient, reliable, low-maintenance and extremely cost-effective. STAHL CraneSystems' team of engineers and technicians always keeps up to date. You can rely on their practice orientated experience. Crane and crab distance protection is provided by light barriers or laser distance sensors and, depending on the version, by the field-proven evaluation device SMC or the two-channel safety shut-off device SCC.

Versions for Performance Level PL b, PL c and PL d employ the recognised and reliable laser scanner technology. These elevate the technology to a higher level of safety and convenience compared to light barrier solutions. The laser scanners continuously monitor the distance, so that any break in the visual range is detected immediately and the crane is brought to a stop. Performance Level PL b is used for crane distance protection with no static relevance, for example to prevent mechanical collisions. Performance Level PL c is the minimum specification if a collision between cranes must be prevented for static reasons. Transporting molten metal or applications with a similar hazard potential demand Performance Level PL d.

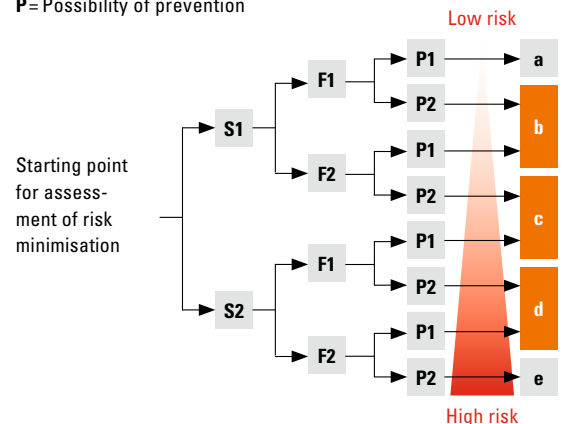
The operating company performs the hazard analysis and determines the Performance Level required. As an alternative, the Performance Level may be specified by the applied standard.

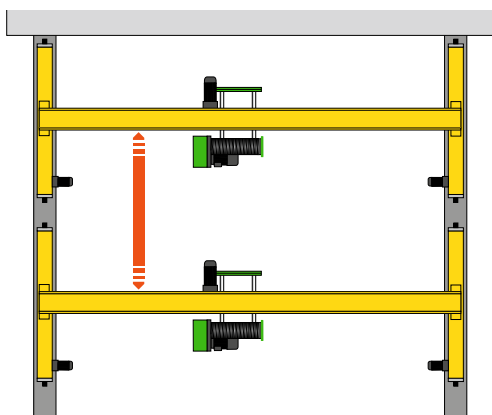
The facts

- Innovative technology with economic advantages
- For safety levels PL b, PL c and PL d
- Laser system with extremely long distance measurement up to 75 m (up to 100 m as an option)
- Temperature range -10°C to $+60^{\circ}\text{C}$
- Parametrisable
- Flexible, adaptable
- The distance is monitored continuously, any break in the visual range is detected immediately

The utmost safety for people, machines and production goods has top priority. This means that risks must be reduced by employing the highest practicable safety level. EN ISO 13849 (Safety of machines – Safety-related parts of control systems) is the basic standard and deals with all safety requirements on all types of machines. It is aimed at manufacturers, and thus also at crane and systems builders and operating companies that may carry out or commission safety-relevant modifications. A multi-stage hazard analysis defines the machinery requirements to be met. The Performance Level is determined on the basis of a hazard graph.

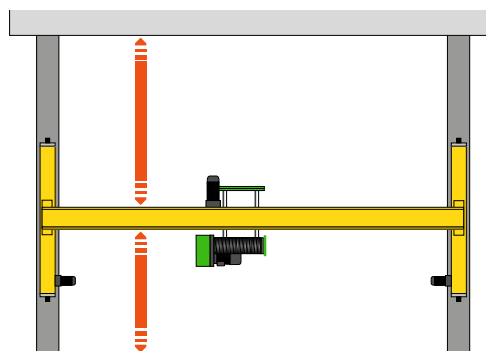
S = Danger of injury
F = Frequency of hazard
P = Possibility of prevention





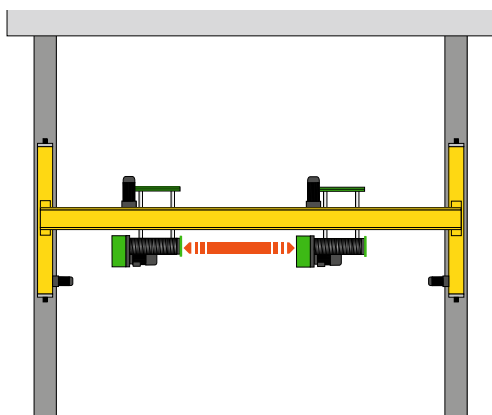
Crane distance protection

Collision protection for two or more crane bridges to one another and/or safety distance protection for static reasons



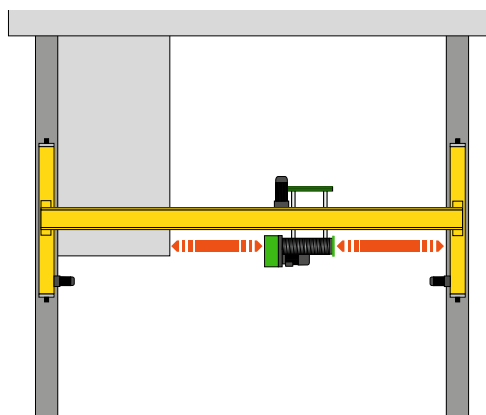
Crane distance protection to wall and/or end of runway

Crane safety distance protection to wall of production building and/or end of crane runway



Crab distance protection

Collision protection for two or more crabs to one another



Crab distance protection to wall and/or end of runway

Crab safety distance protection to wall of production building and/or end of crane bridge and bypass control to secure a section of the building

Travel motion with crane or crab distance protection

Current characteristic of laser scanner (mA)

- Normal travel motion
- Smooth deceleration
- Stop



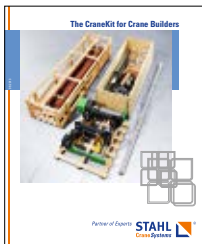
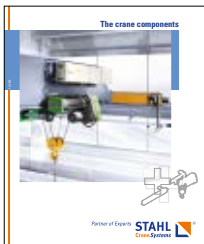
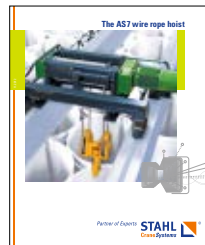
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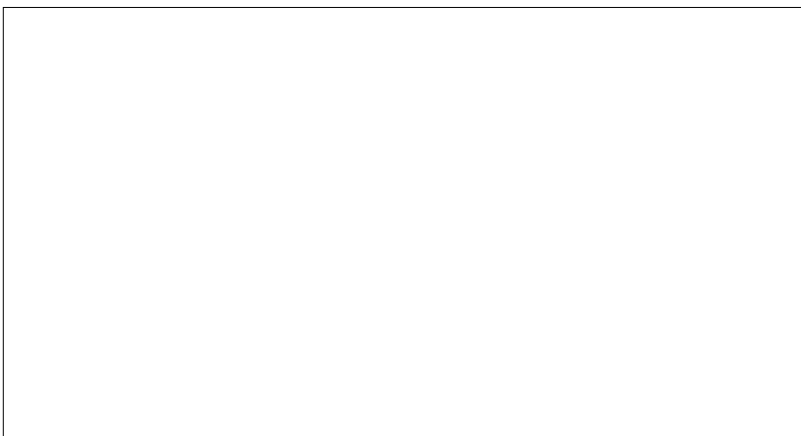
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