

Fast installation and reliable safety!

Looking to implement guards in robust, resourceful and yet cost-effective ways? That's no problem with the right concept.



In future too, the approach using application-specific and cost-reducing solutions in terms of the competitiveness of a company will continue because current global market developments increasingly drive this issue. Thus manufacturing plants containing dangerous machinery for instance, must have in place well-thought-out safeguards designed by specialists in order to ensure smooth-running processes.

Particularly in the industrial sector, many sources of risk exist regarding automated machinery and equipment, which have to be safeguarded mandatorily using guards – for example, mesh panels and their safety-related electrical integration. However, these protective devices are on the one hand not often optimized for the workplace, and on the other, lack sufficient flexibility to be adapted to the plant. Both issues have counterproductive effects on process results.

Inflexible solutions based on fixed standard components, as still used today in many places, are causing considerable delays and high follow-up costs in terms of possible modifications, maintenance or extensions. Here smart developments, which can be implemented quickly and cost-effectively, will help. The research of design engineers is

only considered done when the requirements made by the user (e.g. for flexible construction, extensibility, operational safety and availability) have largely been considered during the design engineering stage, and are also ultimately cost-effective.

The plant extension of a production line for machining and group assembly of more than 200 different molded metal parts serves as an example. The objective for this task was the combination of several process steps with product-dependent piece number increases between 10 and 35 % as well as the optimization of safety devices with emphasis on manipulation safety and plant availability – both tasks had to be performed under great time pressure.

The original plant showed a layout of guards, which were full of compromises, because the hard guards and access points were positioned such that the workers could no longer carry out their work efficiently and ergonomically. In addition, interruptions of the manufacturing process also occurred due to frequent shutdowns of four plant components. A closer examination revealed that a wear-related angular offset of the door side profiles existed, resulting in a malfunction of the Safety Switches. This resulted in higher plant productivity, but also meant an increased manipulation risk. Therefore a revision of the existing concept had to happen.

The application know-how of the MiniTec GmbH & Co. KG and Leuze electronic GmbH + Co. KG companies enabled the development of a sophisticated approach for the guards. For example, patented MiniTec profile connectors ensure extremely quick segment assembly and millimeter-precise mounting on site. Using these, subsequent braces were also easily installed without extensive disassemblies. ((Image 1))

The newly developed S400 series by Leuze electronic was used to provide safety-oriented hinge switches. This combination of an encapsulated forced contact block and a newly designed solid hinge has been screwed together with the door profiles in a concealed manner for the benefit of manipulation safety; the hinge's switching angle is multi-adjustable. If a pallet collides with the frame and thus decalibrates it slightly, or if the installation starts to twist due to wear, the safety officer now has the option to adjust the switching angle. A time-consuming and costly safety hinge replacement is thus no longer required and production losses can be avoided. ((Image 2))

The EN ISO 13849-1 certified MSI-SR4 Safety Relay made by Leuze electronic serves as a link between the S400 hinge switch and the control. It monitors the door position using the signal of the S400 Safety Hinge Switch and reports to the control when a power down needs to be performed. Opening thus stops the dangerous movement of the machine. The introduction of blanks to the designated area would now be possible, for instance.

This example shows that clever protective devices can significantly help to reduce the number of production losses and the tendency toward process manipulation. The new concept using S400 Safety Hinge Switches was implemented on site cost-effectively and tamper-proof within only 3 working days.

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Bilder

((Caption, Image 1:))

Plant door, safeguarded by design award winning S400 Safety Hinge Switches



((Caption, Image 2:))

S400 Safety Hinge Switch reporting door positions to the control

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