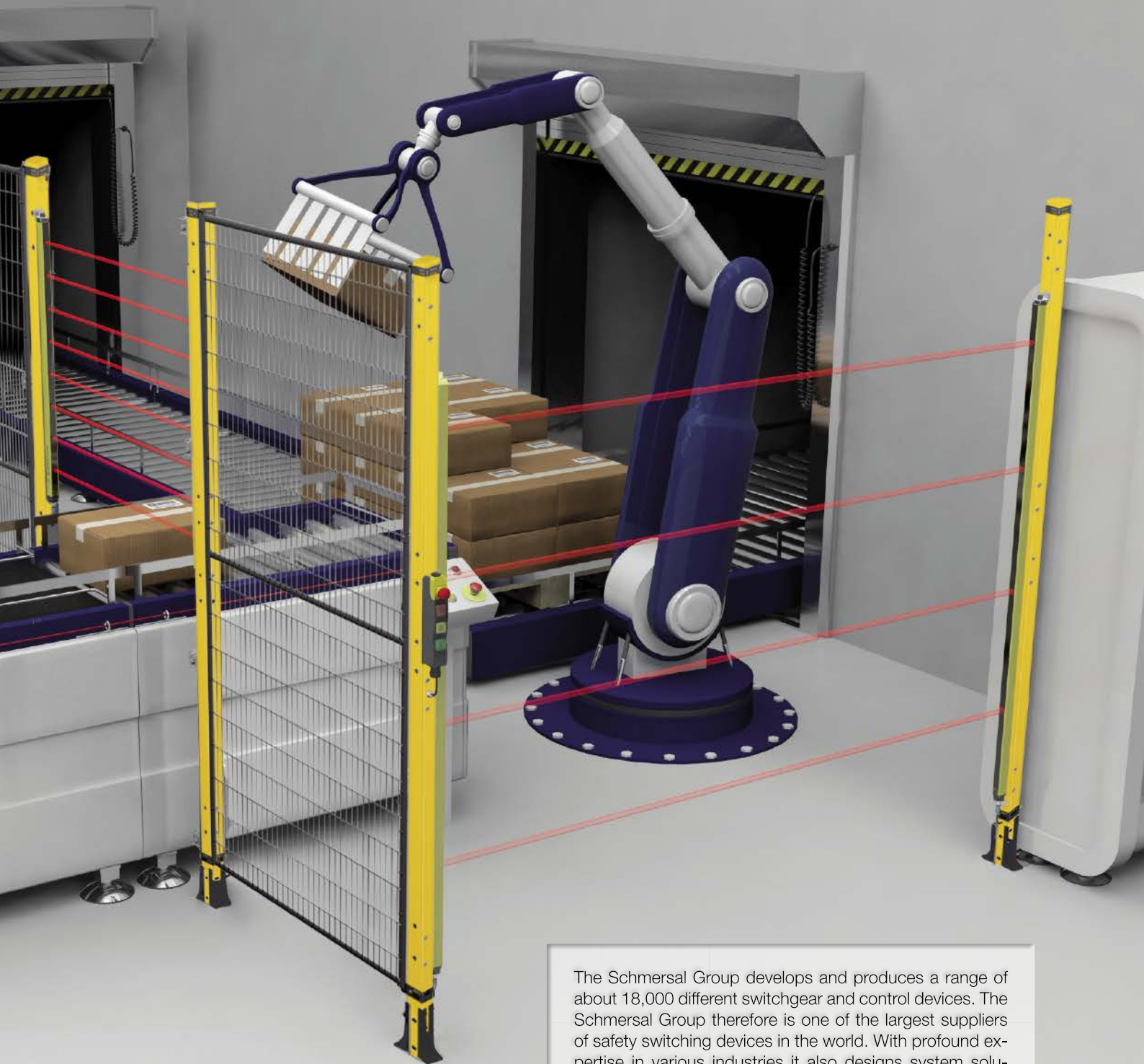


TECHNOLOGY

COVERSTORY



The Schmersal Group develops and produces a range of about 18,000 different switchgear and control devices. The Schmersal Group therefore is one of the largest suppliers of safety switching devices in the world. With profound expertise in various industries it also designs system solutions for machine safety. In addition, Schmersal's tec.nicum business division offers a comprehensive safety services portfolio. Around the world, more than 1,850 employees work on pioneering safety technology solutions.



Industrial Robot Protection

Alternatives to the Safety Fence

The choice of protective equipment around a robot workstation is made easier if one keeps a close eye on the individual circumstances.

It is a familiar picture in industrial production – a robot workstation or a complete, robot-supported production line surrounded by a protective fence. Guard doors within the fencing permit access to the hazardous area for servicing and cleaning purposes. Safety switches, or more frequently, solenoid interlocks, are used to protect the guard door. This form of robot workstation protection is tried and tested and satisfies applicable directives and standards. But is it the best solution for every application? There are alternatives. Consequently, the designer – whose tasks include choosing the right protective devices – should

look closely at the alternatives on a case-by-case basis.

Is a Safety Fence the Only Option?

If the only purpose of the protective device is to prevent the operator from accessing the hazardous area, opto-electronic protective devices could carry out the same function as the protective fence. Safety curtains and safety light grids ensure an unobstructed view of the process, as well as provide for greater flexibility, e.g. when feeding parts.

If the risk analysis indicates that an emergency-stop button needs to be installed in the

hazardous area, a device from Schmersal's BDF product range is recommended. The BDF 100 is easy to integrate into common enclosures and protective fence profiles.

Distinction Between Man and Material

If the designer opts for opto-electronic protective devices, he can create a distinction between man and material, thus boosting the flexibility of the production cell. This can be achieved with functions such as muting, blanking, and floating blanking: if the operator then reaches into the hazardous area, the protective devices cause the hazardous movement



”

If the designer opts for opto-electronic protective devices, he can create a distinction between man and material, thus boosting the flexibility and efficiency of the robot work cell.

Tobias Thiesmann, System and Solutions Manager, Schmersal Group

“



Easy to assemble and ergonomic:
A combination of control panel
and solenoid interlock on the
safety door of a robot workstation

to stop immediately. On the other hand, the components being processed can be conveyed into and out of the hazardous area without the robot being stopped.

Tactile Protective Devices as an Alternative

If operators need to be present within a robot cell temporarily, the use of safety shutdown mats as a form of area protection can be useful. While the operator is standing on the mat and is therefore present in the hazardous zone the robot will be prevented from starting. When safeguarding large guard doors on robot cells and production lines, pull-wire

emergency-stop switches can also carry out the same functions as an ‘all-round’ and, therefore, easily accessible emergency-stop button.

Setup Operation with Two-hand Control Panels

Specific safety regulations apply to the setup of machines and systems in view of the need to work with the guard door open (and, for example, the reduced speed of hazardous movements). When carrying out setup work, the use of a two-hand control panel may present a solution, although these were originally developed for the operation of presses and

other forming technology equipment. With their assistance, safety functions designed to prevent robot operation when a guard door is open, can be bypassed in a targeted and safe manner.

Author

Tobias Thiesmann,
System and Solutions Manager, Schmersal Group

Contact

K.A. Schmersal GmbH & Co. KG, Wuppertal,
Germany
Tel.: +49 202 647 40 · www.schmersal.com