Humanity first and foremost

Safety Consulting

SCHMERSAL

Safe solutions for your industry

We assume responsibility with safety

Professional expertise by practitioners for practitioners

Machinery safety is a challenging and multi-layered theme which poses major challenges both to machine design engineers and safety engineers. After all, during the selection of safety systems, many directives and standards must be observed and new regulations, such as:

- EN ISO 13849-1
- EN 62061
- IEC 61508

in particular are highly complex regulations which require sufficient time and expertise for their proper understanding and interpretation.

Safety Consulting: Good advice from the start

An increasing number of companies are looking for expert assistance and advice in implementing these regulations. After all, expert assistance means that you achieve the desired target more quickly and reliably, particularly if you are dealing with highly specialised issues. That is why the Schmersal Group decided to concentrate its skills and to put its Safety Consulting service in the hands of specially trained experts.

The Safety Consulting service portfolio is clearly structured.

The Consultants advise customers on the following problems, amongst others:

- Application advice
- Stop time measurement
- Risk assessment to EN ISO 14121-1
- Conformity assessment procedure

Of course, the Consultants will also gladly answer questions outside these four fields. To that end, they have direct access to the expertise of the Schmersal Group's different specialist departments, from Product Management to R&D and the knowledge gained from the company's involvement in standardisation, committee and association working groups.

Assistance from experts

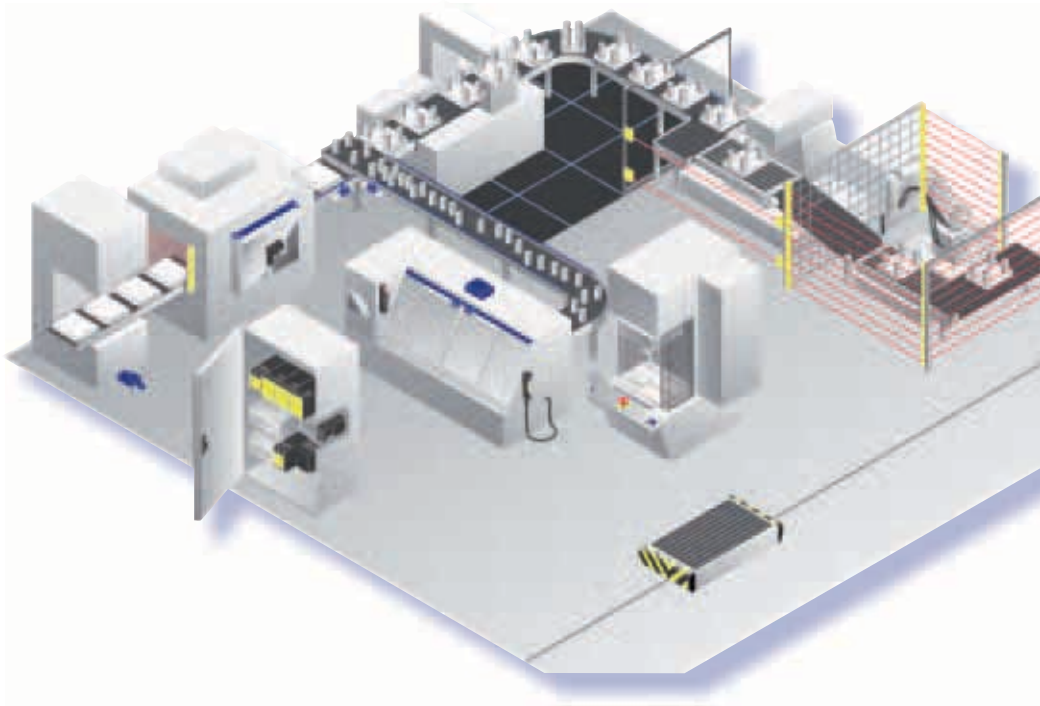
Some thirty experienced Schmersal Group employees from eighteen countries are now qualified as machine safety experts. They collaborate closely with the local sales engineers and product management staff.

Expert consulting services in eighteen countries

Our qualified Safety Consultants already provide customer support and consulting services in the following countries.

- Austria
- Belgium
- Brazil
- Canada
- China
- Denmark
- France
- Germany
- India
- Italy
- The Netherlands
- Norway
- Portugal
- Spain
- Sweden
- Switzerland
- UK
- USA

Safety for your machine(s) and line(s)



Comprehensive know-how

When the Safety Consultants are configuring standard-compliant safety systems, they can rely on comprehensive and highly practice-oriented know-how. As the Schmersal Group closely collaborates with different standardisation bodies, they also possess the necessary theoretical background which is required when selecting or configuring standard-compliant safety guards.

Application Centre: Service provision for the safety of man and machine

The Application Centre was set up in order to provide our customers with an even more thorough consultancy service. Sales engineers, Technical Sales and the Safety Consultants are all involved here. Their field of activity includes, for instance, the parameterisation of safety controllers and customer-specific modifications to safety switchgear.

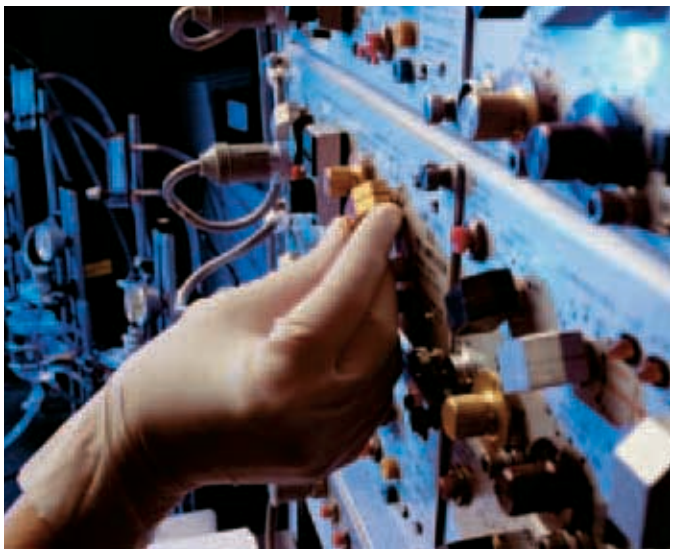
For complex issues: the CE Network

As the Safety Consultants collaborate closely with the CE Network, they can call on comprehensive expert knowledge for specialised issues. This network of expert engineering consultancies, which was initiated by the Schmersal Group, provides engineering industry customers with expert advice on complex themes relating to machine safety. The CE Network has a specialist for every problem, however unusual, and provides an answer to every question.

Prospect: further services will follow

The Safety Consulting service will be followed by further services to be offered globally by the Schmersal Group. The goal is to think outside the box imposed by manufacturers and technologies and to develop and configure complex safety solutions which go beyond our own product spectrum. What's our aim in all this? We would l ke to make the work of you, our customers, easier and to incorporate our expertise in your R&D work. This will help you to offer more productive and safer machines and lines. In short, our advice will enable you to be even more successful.

Application advice/Safety Consulting

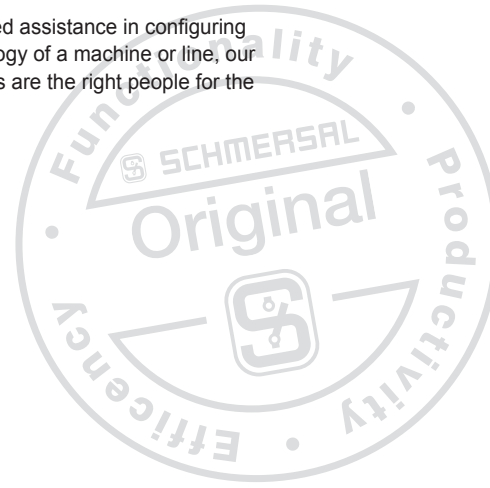


The core task of the Safety Consultants consists in providing customers with qualified answers to their questions, e.g. which type of safety system to use, how to integrate the safety system within the control system and functionalities of the machine and how to configure a programmable electronic safety system to optimally meet both the safety requirements and the productivity specifications of the machine.

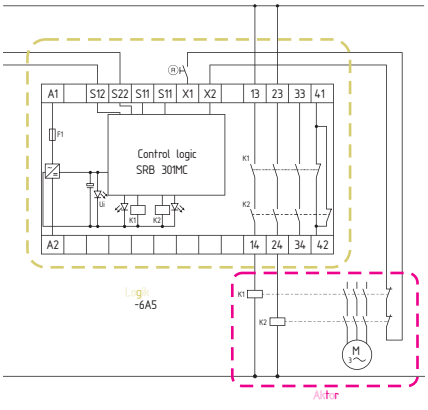
This is a classic task for our Safety Consultants. Usually, the customers have very specific questions. For instance: how can I configure a safety system for a food-processing machine which not only has the required safety level, but also meets the hygienic design requirements?

It often goes beyond just answering this question. Our customers are looking for assistance throughout the development and design process. Our Safety Consultants will be pleased to help you with this challenge; to do so, they can call on the safety technology-related knowledge and the industry-specific know-how which the Schmersal Group has acquired in important fields such as elevators, food processing and the packaging industry.

In short: if you need assistance in configuring the safety technology of a machine or line, our Safety Consultants are the right people for the job.



Risk assessment to EN ISO 13849-1

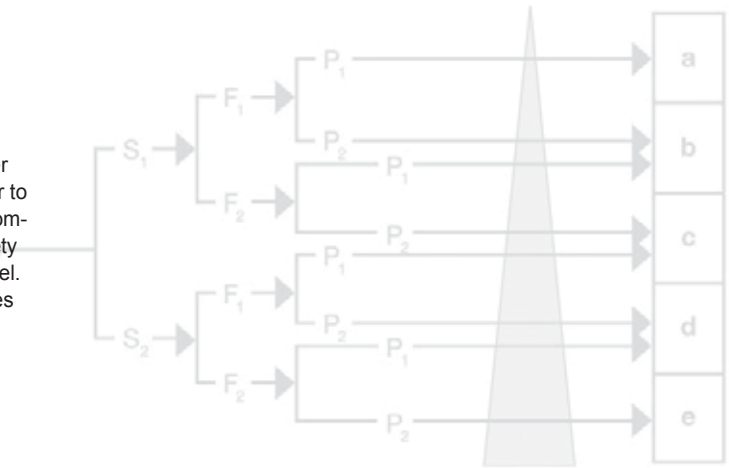


A central consultancy theme for design engineers and safety engineers is the application of EN ISO 13849-1 (Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design).

Compared to the former standard EN 954-1, the requirements relating to the risk assessment have become considerably more stringent. In order to calculate the required and the actual performance level, information on the probability of failure must be included for each element in the safety chain. This is definitely practical, but the probabilistic approach of EN ISO 13849-1 is more complex than the deterministic approach of EN 954-1.

The Schmersal Group's Safety Consultants take on this task from the machine manufacturer and draw up a clear, practical basis for assessing the safety of machine control systems. The SISTEMA software from the IFA (the former BGIA) is used, amongst other tools, for this. This software enables the user to assess the safety-related machine control components and check whether the specific safety function meets the required performance level. This check is based upon the reliability values at different levels of detail determined by the software assistant.

On the basis of the risk assessment, the Safety Consultants also provide specific recommendations with regard to the safety components to be used for a particular application.



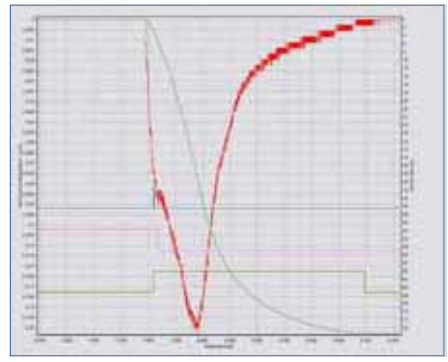
Conformity assessment procedure

Helping customers to deal with the CE Declaration of Conformity procedure is the „supreme discipline“ of our Safety Consulting service. The Machinery Directive sets out the route to be followed by the machine manufacturer before he can finally affix the CE mark. The latest version of the Machinery Directive (2006/42/EC), which has been in force since the end of 2009, includes new regulations in this respect which place additional obligations on the design engineer, but also create new freedoms.

Article 12 of the Machinery Directive offers multiple options for the conformity assessment procedure. Our Safety Consultants will help you find the best way and will support you through every single step of the procedure, e.g. while drafting the standard-compliant documentation in accordance with Appendix VII and the risk assessment which identifies all risks and hazards emanating from the machine.

The input required, especially with regard to the standard-compliant documentation of the process steps, should not be underestimated. However, these tasks are routine to the Schmersal Group’s Safety Consultants, so they can be completed within a reasonable timescale, leaving you free to concentrate on your core business, safe in the knowledge that your machines are being developed in a productive, safe and standard-compliant manner.

Stop time measurement



In many fields of machinery safety, the stop time is an important parameter. This stop time must be calculated, for instance, on machinery where hazardous run-on movements can occur. In such cases, it must be ensured that the safety guard can only be opened when the hazardous movement has come to a standstill. To this end, fail-safe delay timers with corresponding setting of the parameters or safe speed monitors are used.

The “stop time” element is just as important when optoelectronic safety components are used. Here, the distance between the safety component and the hazardous movement must be designed such that any hazard emanating from the movement is eliminated by the time the operator reaches the danger area. Standard DIN EN 999 or ISO 13855 („Safety of machinery - Positioning of safeguards with respect to the approach speeds of parts of the human body“) contains detailed instructions for calculating the corresponding safe distance.

In actual practice, however, it is apparent that it is quite poss ble for the stop time of an operational machine or line to become longer. This phenomenon can be caused by mechanical wear or the use of a different tool on a press, as a result of which the operator is no longer adequately protected.

To avoid this, it is useful to conduct regular measurements when the machine is in operation. The Schmersal Group offers such measurements as a service. During this procedure, the stop time is measured and the compliance of the relevant safety technology with the standards is checked as well, especially in the case of a first check. During the stop time measurement on presses, the worst-case scenario is measured, i.e. the time at which the speed of the press stamp is at its highest. This measurement is also useful on new machinery and lines: in this way, the machine or plant manufacturer documents the standard-compliant functionality of the safety guards.

For many years the privately owned Schmersal Group has been developing and manufacturing products to enhance occupational safety. What started out with the development and manufacture of a very wide variety of mechanical and non contact switchgear has now become the world's largest range of safety systems and solutions for the protection of man and machine. Over 1,200 employees in more than 20 countries around the world are developing safety technology solutions in close cooperation with our customers, thus contributing to a safer world.

Motivated by the vision of a safe working environment, the Schmersal Group's engineers are constantly working on the development of new devices and systems for every imaginable application and requirement of the different industries. New safety concepts require new solutions and it is necessary to integrate new detection principles and to discover new paths for the transmission and evaluation of the information pro vided by these principles. Furthermore, the set of ever more complex standards, regulations and directives relating to machinery safety also requires a change in thinking from the manufacturers and users of machines.

These are the challenges which the Schmersal Group, in partnership with machinery manufacturers, is tackling and will continue to tackle in the future.

Product ranges

Safe switching and monitoring
- Guard door monitoring safety switches
- Command devices with safety function
- Tactile safety devices
- Optoelectronic safety devices

Safe signal processing
- Safety monitoring modules
- Safety controllers
- Safety bus systems

Automation
- Position detection
- Command and signalling devices

Industries

- Elevators and esca lators
- Packaging
- Food
- Medicine/ pharmaceuticals
- Machine tools
- Wood working
- Construction machi nes and cranes
- Renewable energy sources
- Automotive
- Chemical industry

Services

- Application advice
- CE conformity assessment
- Risk assessment in accordance with the Machinery Directive
- Stop time measure ments
- Training courses

Competences

- Automation
- Explosion protection
- Hygienic design
- Machine safety

K. A. Schmersal GmbH
Möddinghofe 30
42279 Wuppertal
Telefon: +49 202 6474 100
info@schmersal.com
www.schmersal.com

SCHMERSAL
Safe solutions for your industry

3.000 / L.D. / 11.2010 / Teile-Nr. 1214814 / Ausgabe 01