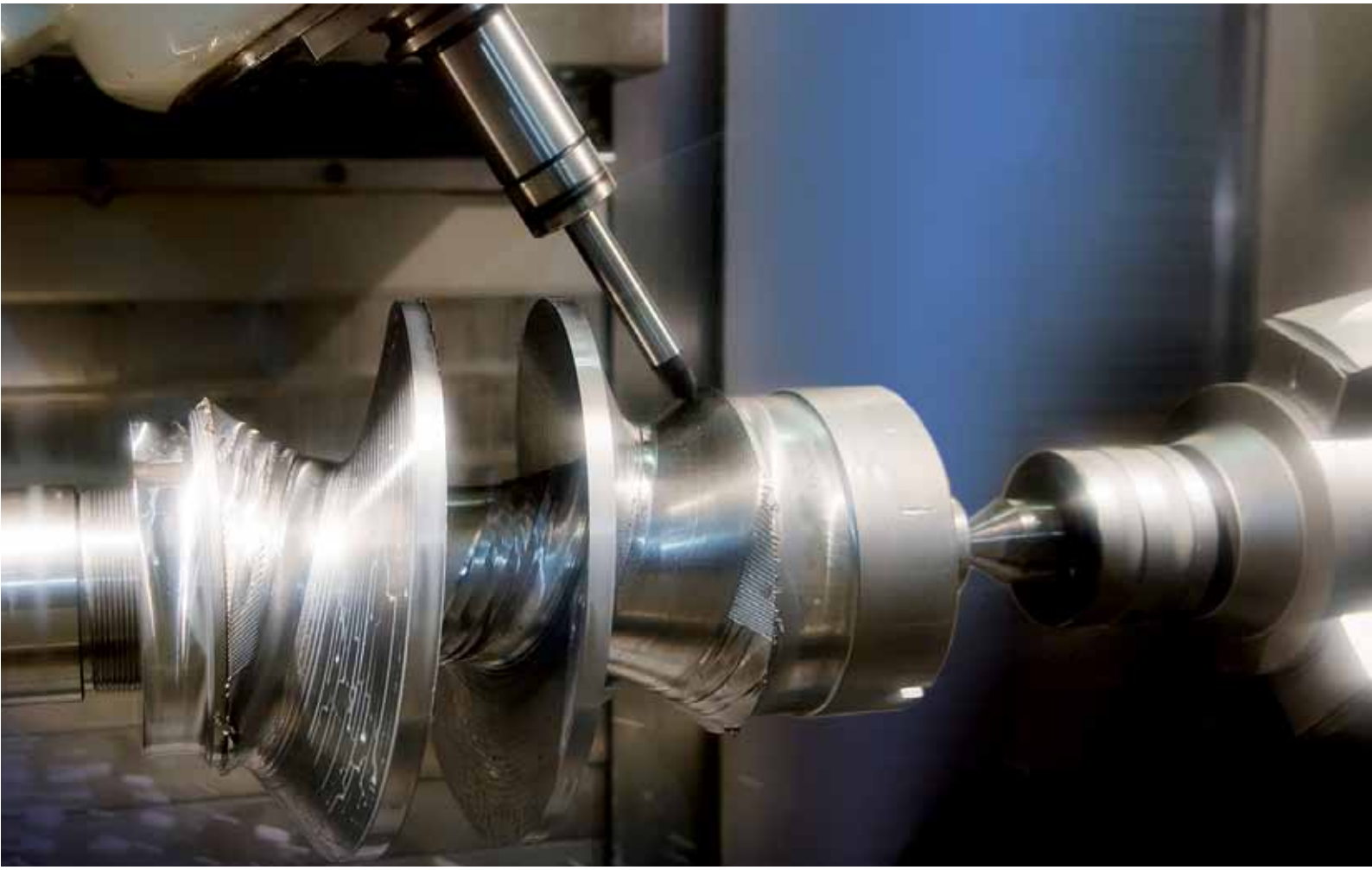
A magazine full of solutions

Machine tools



SCHMERSAL

Safe solutions for your industry

Machine tools

Safety in system: Protection for man and machine - under this motto, the Schmersal Group develops and produces safety switching appliances and systems for the entire machinery and plant construction for decennia already. In some industries, special and additional requirements are applicable.

As customer-focussed company, who intensively deals with the wishes of the manufacturers and users of machines, Schmersal has taken up these challenges from the start. As a result, specific products and solutions were developped for many industries, amongst which the machine tool industry. This provides safety to your industry!

High productivity

Machine tools accomplish diverse processes in the metal working industry, e.g. turning, milling, grinding, punching. Every second counts, especially in large batch production: the productivity is a highly crucial factor to determine the competitive advantages of a machine tool. As machinery safety is regarded, this means that the safety guards must not affect or interfere with the productivity. The Schmersal Group develops powerful safety systems for the machine tool construction in accordance with this principle for many decennia already.

Interruptions unwanted

Interruptions of the production process are unwanted, and not just because of productivity reasons. When the operator opens the safety guard of a boring mill, thus interrupting the process, both the drill bit and the workpiece can be damaged.
This explains the above-average use of solenoid interlocks in machine tools. These devices keep the safety guard closed as long as the process is running. For these applications, the Schmersal Group offers an extremely comprehensive range of products for various requirements - ranging from a compact solenoid interlock for small safety guards to a three-point interlock for very large safety guards and a modular system for protection walkable hazardous areas.

Safety in any operating mode

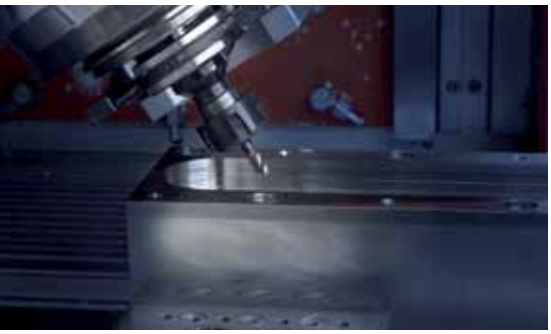
Studies demonstrate that an excessive amount of accidents on machinery and plants occurs during set-up and maintenance. This can be prevented by implementing special safety measures for these tasks. For instance by special operating modes such as set-up mode and process observation, which are described in the new Machinery Directive (2006/42/EC). The Schmersal programme includes for instance enabling switches to put these operating modes into practice.

Core target: avoid tampering

According to studies, the tampering of the safety devices installed on machinery however is unfortunately standard practice in one-third of the metal-working companies. This risk can be minimised in a simple manner by means of coded safety switches and safety sensors as well as hinge safety switches.

Fast diagnosis minimises downtime

It is recommended to use the "AS Interface Safety at Work" standard for the transmission of safety-related signals. In this case, the user benefits from considerably reduced installation efforts and overheads as well as enhanced diagnostic possibilities - features, which minise possible downtimes. The Schmersal Group offers a comprehensive programme of safety switchgear with integrated ASi Safety interface.

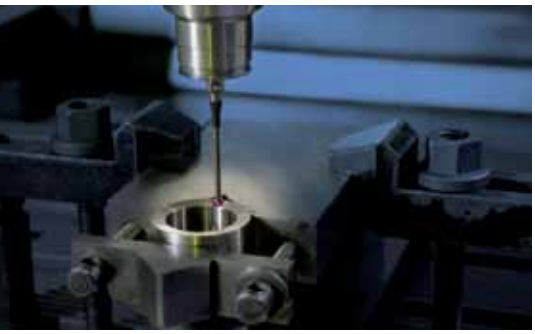


Transparency during operation and observation

Ergonomics is another important aspect of safety at the man-machine interface. After all, a machine with directly accessible operating elements enabling an intuitive operation runs safer. The Schmersal Group is convinced of that. That is why the programme includes for instance the operating panels of the BDF series, which can be directly installed onto conventional profile systems. By means of the command and signalling devices of the R series, complete operating panels can be configured.

Safety at the man-machine interface

Wherever man and machine must collaborate, special safety measures are required. This applies for instance to the feed and withdrawal areas on presses - here, optoelectronic safety devices from the Schmersal Group are used. Schmersal moreover is developping custom-made solutions enabling a safe collaboration between man and robot without separating protective fence for more than ten years already.



Signal evaluation: the choice is up to the user

The safety-related signals can be evaluated in the conventional manner through safety-monitoring modules either through the brand-new PROTECT-SELECT compact safety controller, in which the desired preconfigured programme is simply activated by drag-and-drop. This controller is also available in customer-specific versions as PROTECT-OEM. The PROTECT-PSC safety controller, whose modular structure enables an smooth adaptation to the most diverse needs and requirements, offers even more possibilities and features.

Safety switchgear with integrated ASi-Safety interface are available to users, who prefer a centralised evaluation of the safety-related signals.

Special requirements? Be our guest!

The Schmersal programme includes over 18,000 (safety) switchgear. Many of these products have been developped in close collaboration with individual customers or upon their specific request. Or they address specific requirements of the machine builder. For example: for laser machining centres equipped with safety guards with overlap, a special variant of the AZM 200 solenoid interlock has been developped with a larger actuator. Another example: the SRB 100 DR safety-monitoring module increases the safety of the maintenance staff, who is working in the walkable hazardous areas of interlinked machine tools.

Do you have special requirements with regard to machinery safety? Do not hesitate to contact us! Our "Application Center" will be pleased to develop a practice-oriented solution in close collaboration with you.

International presence

Most machine tool builders are international players. This is inevitable, as their customers usually are operating on a worldwide scale - for instance in emerging economical nations in Eastern Asia and South-America. These enterprises can rely on Schmersal for fast and competent service and consultancy in approximately 50 nations.

Services

Machine safety is a complex theme. The Schmersal Group offers its customers comprehensive support for the implementation of standards and guidelines in high-productive machine tools. The service portfolio includes, amongst other things, seminars in the Wuppertal tec.nicum training centre as well as individual consultancy for machine builders and safety engineers by certified Safety Consultants in more than 20 countries.

Safety switch with separate actuator

AZ 3350 - Code number: C-32AZ33

AZ 200 - Code number: C-74AZ20

AZ 415 - Code number: C-16AZ41

Application

Safety switches with separate actuator are used in the entire production process and in almost all fields of machine tool building. They are suitable for monitoring the position of hinged, sliding and especially removable safety guards, which need to be closed to ensure the necessary operational safety. They can also be used for fitting on profile sections and existing equipment.

- Up to 4 safety contacts.
- Metal and thermoplastic enclosure
- Long life
- Optionally with individual coding
- A wide range of accessories is available
- Versions with connector and cable

Solenoid interlocks

AZM 190 - Code number: C-04AZM1

AZM 415 - Code number: C-23AZM4

AZM 200 - Code number: C-24AZM2

Application

The solenoid interlocks of the AZM series have been designed to prevent, in conjunction with the control part of a machine, e.g. fail-safe delay timers or fail-safe standstill monitors, sliding, hinged and removable safety guards such as fences, flaps or doors, from being opened before hazardous conditions (e.g. run-on movements) have been eliminated.

- Holding force of 500 - 3500 N
- Up to 5 safety contacts
- Metal and thermoplastic enclosure
- Long life
- Optionally with individual coding
- Non-contact solenoid interlocks
- A wide range of accessories is available
- Versions with connector and cable

Detailed information about the products can be found at: **www.schmersal.net** below the indicated code numbers

Hinge safety switch

T.C 235/236 - Code number: C-53TC23

TV.S 335 - Code number: C-34TV8S

TVS 410 - Code number: C-56TVS4

Application

On machinery, where no protection can be installed on the closing side, for instance because of the actuator of the safety switch involving a risk of injury or interfering with the material flow, hinge switches are often used.

Depending on the device configuration and design, both small doors and service flaps as well as heavy hinged guards can be mounting- and maintenance-friendly secured in machinery and plant building.

- Plastic and metal enclosure
- Suitable for standard profile systems
- Positive linkage without cam
- Additional hinges and universal joints to simplify fitting

Safety sensors

BNS 260 - Code number: C-71BNS2

RSS 36 - Code number: C-57RSS3

CSS 180 - Code number: C-22CSS1

Application

The use of safety sensors is of particular advantage, in cases where extremely dirty conditions can occur. This is provided by the simplicity of cleaning of the devices.

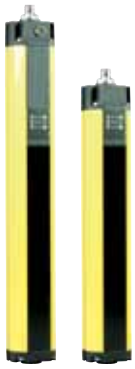
- Plastic and stainless steel enclosure
- With coding and paired coding
- Based upon the latest RFID technology
- With integrated logic circuit for monitoring and evaluation
- Protection class up to IP69K
- Insensitive to transverse misalignment
- Insensitive to soiling

Detailed information about the products can be found at: **www.schmersal.net** below the indicated code numbers

Optoelectronic safety devices

SLB 200 - Code number: C-43SLB2

SLB 400 - Code number: C-86SLB4



SLC 421 - Code number: C-21SLC4

Application

Optoelectronic safety devices such as safety light barriers, safety light grids and safety light curtains are used to protect access to hazardous points or hazardous areas. Compared to the separating safety guards, they provide for an enhanced flexibility.

- Type 2 and 4 safety light grids and curtains to IEC/EN 61496-1, -2
  - Protection class up to IP69K
  - Optionally with muting and blanking functions
- Safety light barriers range 4 - 15 m

Control devices and indicator lights

TFH 232 - Code number: C-64TFH2

Code number: BDF 200 / C-78ZSD

Code number: Command and signalling devices

Application

Command devices are of great importance for the man-machine interface in the field of industrial applications. They are used, for instance, in control cabinets, control panels, two-hand control panels or on conveyor and material handling plants.

New in the programme are the compact, modular control panels of the BDF series, which can be fitted onto common profile systems.

- Emergency stop button
- Pull-wire emergency stop switches
- Two-hand control panels
- Enabling switches
- Safety edges
- Safety mats
- Foot switches
- Spring-return/maintained joystick switches, pushbuttons, selectors and indicator lights

Detailed information about the products can be found at: **www.schmersal.net** below the indicated code numbers

Safety monitoring modules and safety controllers

Code number: SRB

Code number: PROTECT-SELECT

Code number: PROTECT-PSC

Application

Safety monitoring modules and safety controllers are used for the safe evaluation of switching signals. Possible signal generators are, for instance, mechanical position switches, safety switches, solenoid interlocks, safety sensors as well as command and signalling devices.

- Safety-monitoring modules
- Compact safety controllers
- Safety bus systems

Positioning and limit switching

Code number: Inductive proximity switch

Z/T 255 - Code number: C-07255

Z/T 335/336 - Code number: C-12335

Application

In accordance with the application and the requirements, the position detection or the limit switching can be realised either with mechanical position switches with and without safety function or non-contact sensors.

- Plastic and metal enclosure
- Different designs
- Actuating elements for various applications
- Versions with connector

Detailed information about the products can be found at: **www.schmersal.net** below the indicated code numbers

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 provided 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 escalators
- Packaging
- Food
- Medicine/ pharmaceuticals
- Machine tools
- Wood working
- Construction machines and cranes
- Renewable energy sources
- Automotive
- Chemical industry

Services

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

Competences

- Machine safety
- Automation
- Explosion protection
- Hygienic design

2.000 / L.D. / 08.2011 / Teile-Nr. 1217668 / Ausgabe 01

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