

Application Report

Safe in spite of handicap

Safety at work in sheltered workshops



The sheltered workshops in Cham produce a very wide range of work pieces, including complex equipment. And just as varied is the machine park – from the saw to the punching machine right up to the welding equipment. But what are the standards of labor protection here? This question can be very well answered taking the example of a Boschert punching machine.

A handicap, whether mental or physical, generally leads to discrimination of that person in day-to-day life. That applies also to his working life, and hence to an important aspect that makes up the identity of a person. Workshops for handicapped persons embody the idea of offering people who, due to the type or severity of their handicap have no chance of employment on the general labor market, an opportunity of working in a special workshop, of supporting them, of integrating them and of taking care of them. Of course, labor protection measures also have to be taken here.

Under economic pressure

The total turnover of workshops for handicapped persons in Germany is more than 1 billion euros per year, generated by around 250,000 employees. In view of these figures it is not surprising that the workshops for handicapped persons play not only an important social role, but also represent a considerable economic factor. The machines in the workshops are therefore of great significance, and consequently also the labor protection with respect to this equipment which naturally has to comply with the relevant standards and directives.

The sheltered workshops of the Oberpfalz Betreuungs-GmbH in Cham also have to satisfy these regulations. There they have been pursuing the goal of integrating handicapped people into normal day-to-day life and into the working world since 1972. With its market economy orientation, the company has grown steadily over the years. That can be seen, for example, from two adjoining hostels which in the meantime accommodate 82 people. The growth can also be seen in the new production workshop that was erected only in 2009, and a further warehouse covering 600 square meters. In total the sheltered workshop in Cham now has more than 1,800 square meters of production area and 2,100 square meters of warehouse. In addition, 19 lean lifts are in operation in the shipping area.

Machine park with top equipment

The growth has also spread to the machine park that is characterized by enormous variety and was recently expanded to include a punching machine from Boschert GmbH + Co. KG. The machine manufacturer from Lörrach produces its processing machinery less than five kilometers from the border triangle of Germany-France-Switzerland and has been regarded as a competent partner for machine users since 1946. Boschert supplies a wide range of notching and punching machines, and is well-known today in practically every sheet metal processing company.

The Boschert Compact Rotation Index machine installed at the sheltered workshop in Cham offers CNC punching technology at a moderate price. At the same time, the machine impresses the customers with its versatility, e.g. even larger work pieces can be easily machined thanks to the user-friendly software functions (turning, rotating, repositioning, etc.). An infinitely variable rotation of all tools up to 105 mm in diameter is possible. The hazard potentials of such a machine lie in the moving work piece, the sheet metal, and possibly in the feeder, in the tool and in the changer. The classic and established safety solution for this type of machine is access guarding with Multiple Light Beam Safety Devices – either all round or on several sides, as in Cham.

No compromises on safety

The new Type 4 Multiple Light Beam Safety Devices from the MLD 500 Series are employed here. Sensor manufacturer Leuze electronic has had the MLD sensors in its product range since the beginning of 2010, and the number of installations is increasing steadily, particularly in the field of sheet metal processing machines. Here access guarding on several sides or all-round protection systems with Multiple Light Beam Safety Devices represent the state-of-the-art due to the cost/benefit aspect.

"We attach great importance to safety," says Josef Lankes, responsible at the sheltered workshop in Cham for equipment engineering, explaining the significance of safety at work in his area. "That is why less accidents occur with our personnel than in any normal production plant."

And he has a clear statement to make on the qualification of his employees: "We have to assess very carefully which person is suitable for which job. Then there are no problems." Josef Lankes knows what he is talking about, as he can look back on 25 years of experience in the sheltered workshop. After his technical training, he decided to take a job at the sheltered workshop, then took part in further qualification and additional special education training – and he has never regretted it.

Meeting growing demands

Josef Lankes meets the growing demands from industry (the customers include, for example, BMW or Kronen AG in Regensburg) with a modern production landscape and well-organized processes. The changeover to CNC technology, for example, was successfully completed at the workshop in the 1990s. In addition, Josef Lankes has a strict success orientation. As far as the work safety sensors are concerned, the primary aspect for him is that "the function has to be assured."

There he can rely totally on the MLD Multiple Light Beam Safety Devices from Leuze electronic. These sensors can be trusted: The transmitter-receiver system operates reliably even at minus 30°C and ranges of up to 70 meters.

Free-standing optoelectronic protective devices such as here in Cham are subject to special requirements with regard to mounting, stability and alignment quality. The UDC device mounting columns together with the UMC deflecting mirror columns from Leuze electronic allow stable mounting of the MLD Multiple Light Beam Safety Devices directly on the floor. Firmly anchored in the floor, the columns reliably protect the sensors against damage with their robust construction. A precise vertical and axial alignment of the devices is an easy option. Spring elements in the base of the device columns ensure automatic resetting after mechanical impacts (blows, knocks). The MLD sensors are secured simply in den UDC device columns with clamp brackets.

Setup - simple and efficient

During setup, the MLD sensor assists the machine installer with LEDs and an easily legible 7-segment display. This simplifies checking the proper function and, if necessary, troubleshooting. Using the messages that appear on the 7-segment display, the user can immediately determine the cause of the sensor behavior and take appropriate countermeasures, for example: clean front screen, check wiring, correct operating mode and similar.

In addition, the sensor is characterized by a number of functions which are a real help to the machine builder and operator, for example the integrated Laser Alignment Aid which allows the access guards to be very easily installed such as in Cham. The laser beam activated on the transmitter side causes a reflective element on the receiver to visibly illuminate over a long distance, allowing the installer to immediately recognize whether the devices are correctly positioned relative to one another. If Deflecting Mirrors are used for safeguarding such as in Cham, the laser beam is used to align the successive deflecting mirror columns one by one and to correctly adjust the individual Deflecting Mirrors. This is performed quickly and easily, even over long distances — the setup time can be considerably reduced in this way.

Satisfied with the safety standards

For Josef Lankes, the topic of safety at work has the highest priority – despite all the demands for high productivity. With Leuze electronic, he can be sure that the one leads to the other, and that they do not have to represent contradictions. He is convinced that the complete safety-related concept is perfectly balanced in the systems, and summarizes: "With the Light Beam Devices from Leuze, our punching machine that is used predominantly for small batches in nameplate production is perfectly protected."

((In box 1:)) Technical data on the punching machine

- Machine type: Boschert Compact Rotation Index 1000x2000, working range 1060 x 2080 mm
- Plate thickness max. 12.7 mm, plate length max. 9999 mm (by repositioning)
- Punching force max. 280 kN, workpiece weight max. 200 kg
- Positioning speed: x-axis max. 60 m/min, y-axis max. 30 m/min, simultaneously 67 m/min
- Stroke rate max. 250 strokes/min ("standard"), max. 800 strokes/min ("high-speed")
- Position deviation +/- 0.10 mm, mean repeatability +/- 0.03 mm

((End box 1))

((In box 2:)) Really worth seeing!

More on this subject can be seen in a short video clip at: www.leuze.com/mld-clip/

((End box 2))

Figures and captions



Figures 1a, b, c, d. Basic elements for dependable safety: Multiple Light Beam Safety Device, UDC device column and UMC deflecting mirror column with flexible spring elements in the base



Figures 2a, b, c, d. A wide variety of work pieces made from metal: Formed plate, lathed and milled parts



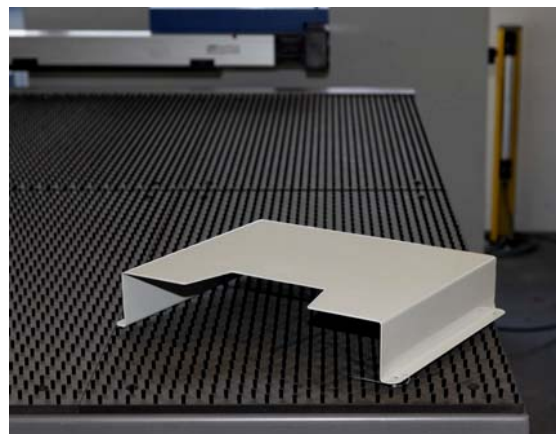
Figures 3a, b. Safeguarding in theory ...



... and in practice. At the front clearly recognizable: The UMC deflecting mirror columns for access guarding on several sides



Figures 4a, b. Boschert Compact punching machine ...



... for a wide variety of sheet metal machining operations (in the background: Transmitters of the MLD Multiple Light Beam Safety Device)

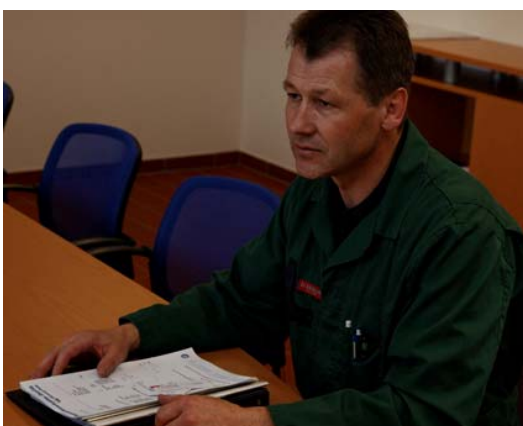


Figure 5. Josef Lankes is responsible at the sheltered workshop in Cham for equipment engineering



Figure 6. Embroidery and painting are also among the products which are marketed commercially, thereby contributing to the turnover

Press inquiries

Leuze electronic GmbH + Co. KG
Matthias May, Tel. +49 8141 5350-123
matthias.may@leuze.de, www.leuze.com

