

Safe bowling with modular system

Machine Safety - ABB safety products

Bowling halls should be a safe working place. Using the equipment and solutions from ABB safety products, the machine safety of over 40 bowling halls in Sweden has been increased.

In spring 2011 the work environment authority in Sweden began to inspect the safety of bowling halls in Sweden. The reason for the interest of the authority was, among other things, that there had been lethal accidents in bowling halls, both in Europe and US, during the last 10 years.

The inspection showed that practically none of the around 300 bowling halls in Sweden complied with the basic health and safety requirements of the European machinery directive. The directive applies to all machinery that is released to the European market.

- If someone enters the machine in a bowling hall it should stop, in order to prevent someone from getting hurt. Previously, in best cases, a simple switch was used to switch off the power to the machine before messing with the system, says Jonas Nilsson, whose company Jonas Nilsson International AB is one of the system integrators that ABB is cooperating with.

No previous protective devices

Before the inspections, there were almost no safety equipment at all in Swedish bowling halls to prevent the staff, or even worse, players who entered the lanes to come in direct contact with the big machines who handles the pins and balls.

- That is not an acceptable situation. It is not allowed to have machines in a work place in a way that that people can get injured, says Anders Brunander, Swedish sales manager for ABB safety products.



And he continues:

- Our job is to help the customer find the most cost effective solution. With high availability while complying with current directives and standards.

Star Bowling in central Gothenburg is one of the halls where ABB and system integrator Jonas Nilsson together have developed a safety solution.

The base of the system consists of 4 Pluto Safety PLC's and 16 B51 output modules. In Star Bowling they have chosen to put light grids both in front of the pins on the bowling lane and in the machine room.

If the light grids, connected to Pluto, are interrupted the power to the machine is broken using double contactors. Then the machine is safely stopped and the staff can enter and perform their tasks under safe conditions.

In the machine room there are fences on the sides of the 8 lane pairs to prevent contact with the machines on the adjacent lanes. In this way it is only necessary to stop one lane pair for the staff when entering the machine.

After stopping the machine, the system must be reset by pressing a button before the machine can start again.

- The idea is to allow quick and easy entrance, perform the task at hand, and then exit, says Jonas Nilsson who has previous experience of building safety around robot cells.

Spending more time on maintenance

Among the staff in the bowling halls, some are of the opinion that the safety requirements has made the work more difficult. It takes longer to fix a pin or ball that is stuck. At the same time most of them thinks it is good to have a safer work environment.

- We want to minimize the process stops. Our guests should get the playing time they are paying for. One of the results from this is that we are spending more time on maintenance of the machines in order to minimize the number of stops, says Jens Sjöbom who is technical manager on Star Bowling and also plays bowling in the Swedish top bowling league.

But in the end it doesn't matter what the owners and staff thinks. The regulations applies to bowling machines and the bowling halls that doesn't comply are shut down, which recently happened to a bowling hall outside Gothenburg.

- With this in mind I have to say that the solution we have is the best available, says Lars Flack on Ninas Bowling in the town of Kinna.

His bowling hall was recently equipped with a similar technical safety solution as Star Bowling. The system integrator was AMM Styrteknik.

- We have had a very good cooperation both with ABB and the local system integrator. They have a great knowledge of what the legislations means, says Lars Flack.

ABB's role can be described as a transmitter of knowledge within machine safety. With a modular safety system the system integrator is helped to create a user friendly and cost effective solution.

- To succeed with this, we always have a dialog with the persons involved. It is very important that the operators who will work with the system are included. Otherwise there is a risk that the operators will try to bypass or cheat the safety system. Sometimes the risk assessment leads to changed work procedures. The goal is to minimize the risks as far as possible, says Anders Brunander.

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The machine safety needs to be upgraded in many of the bowling halls in Sweden. Anders Brunander from ABB Jokab Safety discuss with Jonas Nilsson from Jonas Nilsson International.

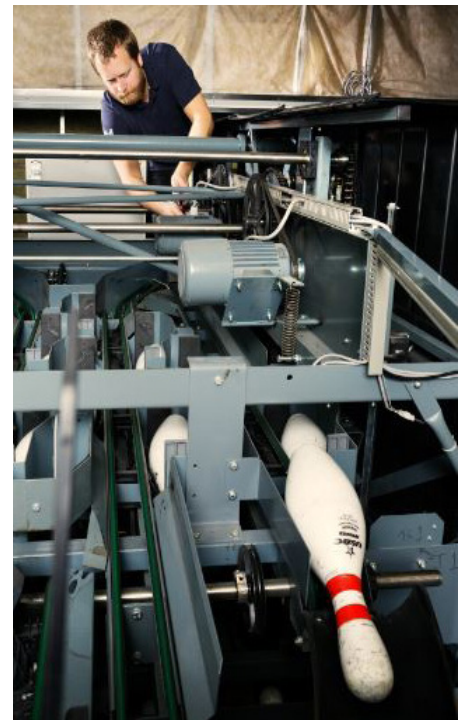
It is estimated that only half of the approximately 300 bowling halls in Sweden complies with the current European legislation.

Facts

Star Bowling is a modern bowling hall close to the central station in Gothenburg. It is decorated in American style and offers a restaurant, bar conference rooms and other games.

Ninas Bowling & Café is a bowling hall with 8 lanes in the town of Kinna in western Sweden. Lars Flack runs the hall together with his daughter Nina Flack, an internationally known bowler who has won several European- and world championships.

ABB has delivered a safety solution to the 16 lanes of Star Bowling in Gothenburg, consisting of 16 Focus light grids, 4 Pluto Safety PLC's, 16 safety relays BT51, 128 AF09 contactors as well as several other components.



After the occurrence of lethal accidents in bowling halls, both in US and Europe, the Swedish work environment authority began inspecting the machine safety of Swedish bowling halls.