

Focus on IFA's work

Edition 2/2015

617.0-IFA:638.22

The defeating of protective devices on machines

Problem

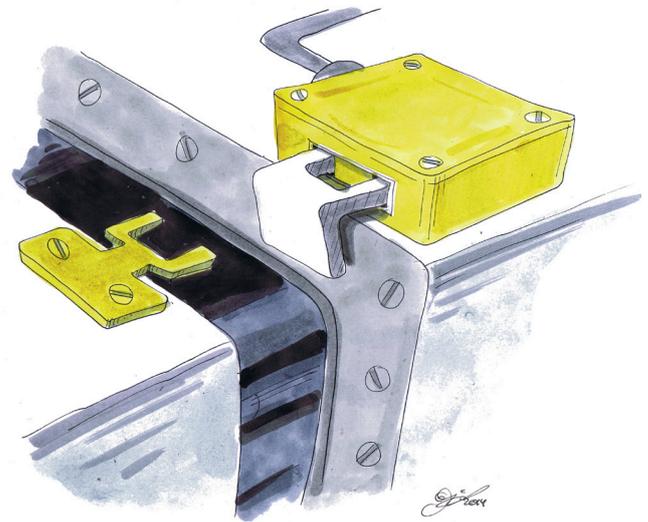
Accident investigations at the workplace by the German Statutory Accident Insurance Institutions suggest that users of machines evidently repeatedly and deliberately defeat the machines' protective devices. Protective devices are disabled, e.g. by bypassing or dismantling them. The reasons for such acts of defeating have not so far been systematically investigated. Nor have there been any reliable assessments of the scale of defeating in industry.

Investigations by IFA and IAG therefore set out to supply a rough estimate of the scale of defeated machines resp. protective devices while also analysing the machine users' specific reasons for defeating machines.

Activities

To investigate the reasons and to assess the scale of defeating, two survey tools were developed. A general questionnaire was drafted to obtain a general estimate of the scale of defeating (e.g. what percentage of all protective devices is defeated). The questionnaire was mainly used in training centres of the Accident Insurers.

The second survey tool is a special questionnaire for the detailed analysis of the specific acts of defeating at the workplace. This tool was used by supervisors to describe all the aspects associated with defeating. It was filled in during or immediately after shop inspection if a defeated machine



Position switch for detection of the door position, defeated by means of a substitute actuator

or protective device was discovered or one was openly pointed out. A special factor here was the direct involvement of the operator, i.e. of the potential defearer. With the aid of open questions, the aim was to reveal the specific benefit of defeating and possibly yield suggestions for improvement. With this special form of questioning the end user, it was possible to perform an initial check of the usability of the interfaces between man, machine and the protective device.

Based upon the study results, a series of activities were launched with the long-term aim of reducing the incidence of defeating protective devices.

A working group was therefore founded at national level together with the accident insurance institutions. This group described examples of good machine design. For example, protective devices on machines can be designed such that they do not obstruct the operating personnel during their work, which is how an incentive for defeating arises in the first instance. In addition, tuition modules were developed for training, a knowledge module for the training of labour inspectors, and an app for identifying the incentive for defeating. The topic of defeating was addressed in standardization work on machine design, and is now reaching companies operating machinery in Germany by way of technical rules under the German Ordinance on industrial safety and health.

At international level, the IFA is represented on a working group of the International Social Security Association (ISSA), which also maintains the www.stop-defeating.org website. This site is devoted exclusively to articles on the subject of the defeating of safety devices. All results of the work of the German working group are also published there.

Results and Application

The returned total of 940 general questionnaires permitted a valid estimate of the frequency of defeating in metalworking firms. The extent of defeated machines and protective devices in operation is considerable.

The initial results yielded by the evaluation of 202 special questionnaires, i.e. actually observed acts of defeating, are targeted at all the factors involved in working life, i.e. man, technology and organization.

In order for the incidence of the defeating of protective devices to be reduced in the long term, guidance documents, examples of good design and checklists have been produced. They are available free of charge at www.stop-defeating.org.

Area of Application

Manufacturers and operators of machines (machine tools) and protective devices, occupational safety experts, supervisory staff, standardization employees in the machine (machine tool) sector

Additional Information

- Manipulation von Schutzeinrichtungen an Maschinen. Report. Hrsg.: Hauptverband der gewerblichen Berufsgenossenschaften (HVBG), Sankt Augustin 2006 www.dguv.de/webcode/d6303
- Incentive to bypass protective devices. Assessment matrix. Hrsg.: Institut für Arbeitsschutz der DGUV (IFA), Sankt Augustin www.dguv.de/webcode/e20709
- Prevent defeating of safeguards on machinery. IVSS – Internationale Vereinigung für soziale Sicherheit, Sektion Maschinen- und Systemsicherheit www.stop-defeating.org

Expert Assistance

IFA, Division 5: Accident prevention – Product safety

Literature Requests

IFA, Central Division