

Solo Safety

Risks faced by lone workers



Working with no colleagues around is becoming increasingly normal, but is it safe?

The intensification of jobs in the industrial world is on the rise. Driven by the pressure to reduce costs, more and more workplaces are emerging in which highly specialised people work on their own, doing very responsible jobs.

These jobs and the related workplaces are partly associated with high risks, which have to be evaluated and reliably controlled to avoid major damage. Whenever people are working alone, mistakes can more easily turn into routines and even a single mistake can have dramatic consequences.

Defining lone work

Let's have a look what lone work actually is. A lone worker is an employee who performs an activity that is carried out in isolation from other workers without close or direct

supervision, e.g. no visual contact and nobody in calling distance.

Typical lone working jobs include:

- *Railway drivers*
- *Employees controlling measuring and switch rooms of process plants*
- *Night guards in larger office complexes*
- *Mobile maintenance personnel with changing customers or sales representatives driving their cars*
- *Machine operators*

These jobs have in common that most processes are automated and people rarely have to interfere. These, however, are usually very specialist situations that require expertise, caution and considerable responsiveness to prevent harm. The lone worker therefore becomes an integral element of the safety chain.

At the same time, the employees in these positions are more at risk than colleagues who work together. This fact needs special focus in an ageing



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society. The physical performance of human beings diminishes with age and so to maintain safety any weaknesses in lone workers must not pass unnoticed. Technical precautions have to be taken.

To illustrate this, let's look at an incident with a commuter train. With the train's driver passed out in the driver cabin, a train rolled uncontrolled for about 10km through the valley of the river Elsenz in Germany. Continuing on at 60km/hour the train missed several station stops, so passengers tried to contact the train driver. Looking through the glass panel of the driver's cabin, they saw the train driver collapsed on his seat. The door to the driver's cabin was locked and the driver showed no reaction even when the passengers knocked strongly on the door. A passenger pulled the emergency brake, but even then the train did not slow down. Luckily, on this occasion the train ride came to a good end as a few minutes later the train driver regained consciousness and stopped the train. It still begs the question: what could have happened if the train had entered the next and larger station at full speed?

An investigation showed that the 62-year-old driver was suffering from an undiagnosed illness that made him fall asleep at work. Still, he was

capable of activating the so-called dead-man's grip, which was the only technical precaution. The emergency brakes of this type of train do not stop the train, but instead give a warning signal to the driver's cabin. The train company explained that the train was technically sound and the emergency systems were carried out in the existing form for good reasons. Despite this, the train driver's physical weakness was not only dangerous for himself in his shielded lone workplace, but also proved a considerable risk to his environment.

Furthermore, the train company did not see any necessity to improve train safety techniques. This shows the awareness of the accepted risk of those people being responsible, while at the same time giving insights into the company's error culture.

Further workplace risks

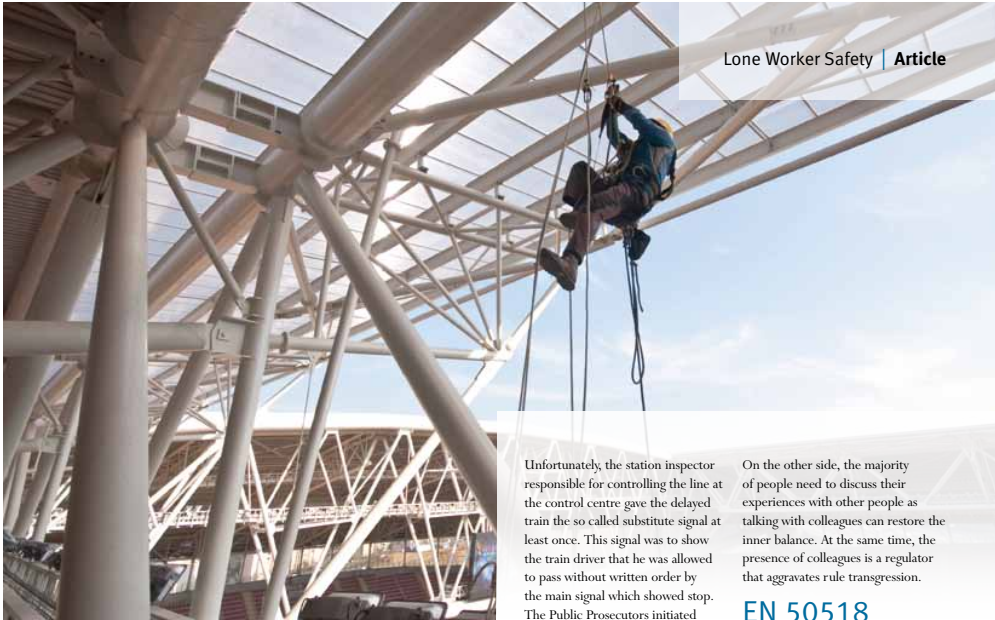
Often, monitoring activities for longer periods tend to be monotonous and drive people to get distracted. Our ways of working, for example, force many people to drive by car alone over long distances. At some point, this gets into a routine of several repeated standard activities, which are performed automatically and without much thinking. There are no colleagues to talk to and

even the radio does not provide adequate stimulation. Consequently, more and more people engage in hazardous activities such as writing text messages on their smartphones even while driving. A German survey shows that nearly five percent of all car drivers observed were busy with their smartphones while driving, and the number of accidents caused by this is growing. It turns out that even the activity of driving a car asks for more attention than you want to admit when routines are established. Surveys show that texting on the phone reduces the concentration ability as much as a blood alcohol level of 1.1 parts per thousand. This danger is clearly underestimated.

Let us now have a look at another rail traffic example, this time with tragic consequences.

On February 9, 2016, two trains collided head on near Bad Aibling in Bavaria. Twelve people died from the injuries received in the accident and another 85 people were injured, 24 of them severely. Only one train at a time must drive on this singletrack line. This is controlled by an automatic system.

On this day, one of the trains was delayed and the train driver had to stop at an automatic signal to let the oncoming train pass. ▶



Unfortunately, the station inspector responsible for controlling the line at the control centre gave the delayed train the so called substitute signal at least once. This signal was to show the train driver that he was allowed to pass without written order by the main signal which showed stop. The Public Prosecutors initiated preliminary investigations against the station inspector for involuntary manslaughter, personal injury and dangerous interference in rail traffic. At the same time it became known that the station inspector had been playing a game on his smartphone while being at work and as such had been distracted. The Public Prosecutors consider this as a more serious breach of duty than a mistake made in the heat of the moment which had been first believed.

The station inspector was alone in the control room, responsible for short lines with little traffic. We can assume from this that the daily routine and the lack of control by others allowed distraction to take hold.

In this case, the public reaction was especially noteworthy. While in the beginning there was still sympathy for the station inspector who tragically made an erroneous decision, the mood turned against him when the details became public. Why did people especially detest him, when car drivers often show equally risky behaviours?

Obviously, the combination of working alone and doing a controlled job is an especially sensitive mixture.

In all routines that require a high degree of concentration over a long period of time, the lure of distractions will always remain.

On the other side, the majority of people need to discuss their experiences with other people as talking with colleagues can restore the inner balance. At the same time, the presence of colleagues is a regulator that aggravates rule transgression.

EN 50518

The new standard EN 50518 asks explicitly to have minimum two employees at any time in all emergency call and service central offices where signals are monitored, received and processed which need immediate reaction. This demand covers explicitly not only intrusion and hold-up detection systems, but also alarm systems with video surveillance, social alarm systems, access control systems and audio/video house communications. The standard is to be applied for all systems and applications that transmit and process security related reports, alarms and information. Although not directly mentioned, elevator alarms are also covered.

Working in a control centre consists usually of static routines over long periods, meanwhile a rarely occurring case of an incident is often dynamic and highly complex. The requirements for the employees are in both cases completely different. In the first case, a high degree of attention without personal decisions is required, often even without personal actions. In the second case, highly complex situations partly with contradicting information need to be analysed, what might also ask for fast decision and action. For organising and operating control centres, it is important to consider both levels of requirements. Therefore, the ▶



standard EN 50518 gives statements to material and organisational requirements. As an example, there are requirements concerning a minimal degree of fire protection and a focus on the necessity of implementing risk assessments.

Risk assessment

A good risk assessment anticipates all aspects and situations of a working place. Advanced methods even use simulations and situation games.

Their results identify situations that appear only rarely and that cannot be seen from a classic point of view, meaning that far-reaching preventive measures can be developed.

Possible errors can be anticipated and avoidance strategies and counteracting measures can be developed.

In addition, a suitable framework can be developed to break up routines by variety or to prevent boredom and dullness. One remedy can be job rotation. This is especially suitable for simple control centres, where little training time is needed for the monitoring job, or when there are several quite similar workplaces.

Even when all aforementioned demands are met, however, it is and remains the employer's responsibility to monitor whether all defined measures are implemented and successful. EN 50518 demands again regular control of workspaces. Employees that are lone workers are surrounded by a wall of regulations, but are still alone within those and especially during nights many people feel like they answer to no one but themselves. In contrast double occupancy of control centres forces employees to comply with regulations, since any deviation requires justification to the colleague present.

An occasional change in constellation of the two-people-team prevents a 'culture of deviation' and supports compliance. When further supervision is to be expected and the chance of being caught while deviating from the rules increases, the motivation to comply with the rules increases, especially the ones that regulate safety.

Mistakes are allowed – but just once – and they have to be talked about. Humans do not always make the right decisions and the fact that



humans make mistakes is not in itself a revelation. Deviations of correct behaviour do not always lead to accidents, but the examples referred to in the beginning show impressively that lone work introduces a new factor of risk. Mistakes by lone workers can have their own causes. Furthermore, they can quickly have fatal impacts.

The way companies handle deviations or mistakes, their so called error culture, is crucial for the advancement of safety. This is regardless of whether the mistake is due to conscious or unconscious actions. If the train driver had notified the employer of his illness without the fear of losing his job, he could have been transferred to a different position, where his sudden sleep attacks would have been without consequences. Likewise, if the station inspector had notified his employer of his boredom during the routine at his position, his work routine could have been changed into something more varied and attractive.

Part of a healthy safety culture is the open minded handling of deviations and mistakes, the so called culture of constructive criticism. ▶



Unfortunately, errors are frequently kept secret due to the worker's fear of being blamed. It happens again and again, with leaders not knowing how the work in their area of responsibility is being performed. Employees meet their leaders only when they are pressed for time, a project is in danger of getting out of hand or in cases of quality impairment. Employees usually do not want to disturb management with questions regarding occupational safety and therefore, when in doubt, make decisions themselves. Despite best intentions, this too often leads to situations in which employees perform tasks for which no work instructions or risk assessments exist, meaning the specific processes and risks are unknown.

One of the most tragic examples in this context was the death of a lone worker at his workstation, which was not detected until 10 hours after his death by a colleague during the next inspection patrol.

The insights into complex correlations and hidden mechanisms within the organisation and in its working employees gained through an open discussion about deviations and mistakes, are still being underestimated.

Lone workers are often placed in the centre of complex processes, which are then exacerbated through said employee. In this situation, companies cannot afford to underestimate the possible errors and resulting consequences.

Technology and organisation are important prerequisites to keep humans safe from the dangers that can arise at lone workplaces. Responsible for keeping technology and processes running smoothly, however, are workers whose attitudes depend on a company's corporate culture. It is important, therefore, to choose a lone worker with the right personality for the job.

The next factor that contributes to a successful process organisation is a good education. Especially in lone workplaces this requires not only the communication of knowledge but also training in real life situations. The use of real life training and simulations is ideal to illustrate the possible consequences of decisions made in the workplace. From this training workers can go on to make the right decisions, keeping workplaces safer.

The solution is to conduct realistic risk assessments that include the possible sources of problems and errors found in the three areas of technology, organisation and human behaviour, as well as an open, communicative and fair culture of constructive criticism. ■

Authors



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than 20 years as a trainer and consultant – the last seven year period as general manager at Kirschstein & Partner. She started her career as a freelance trainer and consultant for international companies with a focus on HSEQ - communication, leadership, cooperation in teams and change management in organisations. Elke is specialised in concepts and strategies for change processes in multi-national companies, supporting safety culture in various companies and industries.



Dr Volker Koch holds a PhD in Chemistry from the Leibnitz University in Hannover and is General Manager at etalon international GmbH. In the course of his more than 25-year career as an EHS professional in multi-national companies he gained deep insights into different industries and got sound knowledge in the fields of safety and environmental protection. He led different EHS

organisations and successfully initiated and managed sustainable change projects as well as optimisation processes.

etalon international GmbH

The German based etalon international GmbH was founded by Elke Werner-Keppner and Dr Volker Koch based on their experience in supporting and leading change culture processes with innovative tools to improve knowledge, attitude and behaviour in multi-national enterprises. With its strong roots in behaviour oriented occupational safety, etalon is able to offer on one hand a broad scope of expertise ranging to environmental protection and health and on the other hand leadership development

and coaching. The etalon team comprises experts with more than 20 years of experience in the fields of psychology, environmental protection and communication.

All team members are working in close cooperation with their clients as qualified specialists in projects as consultants, coaches, trainers, lecturers and seminar leaders and contribute to the successful management of customers' projects.

etalon carefully regards the culture, history and leadership attitude of each client as unique and applies customised solutions in order to maximise the effectiveness of its services and products.

Assessing the risks successfully

The following is an example of a good risk assessment resulting from a process simulation.

Let us take the example of a service technician. He goes on a routine drive to five regular customers with an assembly trolley, and on the day in question has to exchange a dial gauge in a ventilation centre.

Although the assessment based on his position has predicted that construction may occur, there is no method of risk assessment that can predict all details of the construction he will find at the customer's site on his way to the workplace.

One result is the demand that the lone worker now has to perform a last-minute-risk-assessment (LMRA). This will evoke an active attitude in him to analyse his current situation more closely, to draw conclusions and make decisions. The LMRA is an extended version of risk assessment in which the service technician will get a clear picture of the current situation on-site, which would not have been predictable from an office desk. He recognises, for example, new risks resulting from tripping hazards, dropping objects or dismantled railings.

Another fundamental regulation of his company is that no work may be performed – even when pressed for time – if a worker's safety is not ensured. This offers a wide framework to make independent decisions.

