



Webinar
**“Safety in the warehouse –
Safe around the warehouse with industrial trucks”**

- Tuesday, 18 May 2021 -

Q&As

Q: What importance does safety have for your customers today - hygiene criterion or purchasing decision?

A: Safety is an important topic for us and our customers. They expect a coherent overall package. Safety systems are essential components of that.

Q: You mentioned a categorisation of risks or the differentiation of risks. Why do you do this?

A: We chose to categorise risks in order to guide our customers and prospects through this very broad topic in a very simple and structured way. To do this, we looked at the hazards from a general perspective and then clustered them in a meaningful way. Depending on the cause and risk, there is a respective solution on how to avoid the consequences of risks. You can also find this categorisation on our website, where we present an even greater variety of solutions than we could here in the webinar.

Q: Are there different equipment packages depending on the risk categorisation?

A: No, you can combine all our assistance systems individually to your needs. Your contact person will be happy to advise you.

Q: Does the access feature with safety questions before starting work that you mentioned exist for all vehicles?

A: Our so-called pre-shift check is available for all counterbalance trucks that have been launched on the market since 2018.

Q: How many (minimum/maximum) & which questions can be set in your system?

A: One question is the minimum that can be set. The default question here is: Is the truck ready for use? STILL created a catalogue of questions which is continuously expanded. It currently contains around 30 questions that can be selected individually. In addition, the customer can phrase questions together with our service technician, which are then activated. So far, the upper limit of questions is around 40. In practice, from our experience, a maximum of 4 to 5 questions make sense.

Q: How do you ensure that the driver cannot blindly type in the answers from the third day onwards without checking?

A: The sequence can be set to alternate the questions selecting from a pool so that they are asked in an arbitrary order, e.g. 3 out of 10.

Q: You mentioned that individual truck characteristics can be defined for individual drivers with individual access controls. What characteristics are these?

A: We can define individual driving programmes and adjusted parameters such as acceleration, speed, braking behaviour or lifting speed.



Q: There has been constant talk about assistance functions that slow down speed, and yet there is always the aim to make the trucks faster. Doesn't that contradict each other?

A: We want to offer our customers the possibility of being able to work both quickly and safely. Especially on long distances, our customers want the 'power' to travel fast and cover the distance quickly. But in dangerous situations, of course, it should be absolutely safe, no matter what the possible maximum speed of the truck is. That is why, for example, there is the option of automatically reducing the speed to a sensible and safe level when cornering. Another example is speed adaptation to the available space. Here, when entering halls, the speed is automatically reduced because there is typically more pedestrian traffic and less visible routes.

Q: The application-specific parameterisation for the access controls is carried out by the technician. What about the assignment to individual drivers, can only the technician do that too?

A: No, of course not. That is up to you. The fleet manager is able to assign the individual authorisations to the drivers. The technician only parameterises the different truck characteristics once, which you can then assign and change individually at any time.

Q: Are the different warnings & warning signals the same for all truck manufacturers or is a misinterpretation of the warnings possible if I change manufacturers?

A: No, each manufacturer uses different signal sounds and lights. However, all systems known to us use the colours red and blue. With us, you can also choose whether you want the light signals in red or blue. Horns and bells are common signal tones, not only for industrial trucks. Even if they differ, they should be recognised as warning tones. The risk of confusion is extremely low.

Q: There are many visual and audible warning signals, but especially in very bright and noisy environments, how can drivers and pedestrians be warned there?

A: The acoustics and visuals of the warning signals are so clear that they cannot be overlooked or overheard. For pedestrians, however, there is the additional option of being warned not only visually and acoustically but also by a vibration alarm using a radio-based safety system with a module carried in the pocket, a wristband or similar.

Q: Are there any other pedestrian warning options in addition to visual and acoustic warning signals?

A: Our trucks are technically prepared to integrate radio-based collision avoidance systems, for example, as also shown in our webinar. Here, there are systems that the pedestrian wears, such as small modules for the trouser pocket, wristbands or safety vests, which additionally warn the pedestrian by vibration.

Q: Are the mentioned safety systems installed as standard on VNA trucks or are they optional?

A: These are optional safety systems, such as iGo pilot safety which we adapt individually. Since narrow-aisle warehouses are designed very individually, it is necessary to define the specific safety regulations and functions that apply in advance in order to then place the reference markers such as barcodes or RFID tags appropriately.

Q: Does STILL offer training to recognise and deal with risks and hazards?

A: If you want to climb high, you can do abseil training with us, for example. We also offer forklift driver training, additional training for reach trucks and annual instruction for industrial truck operators. In addition, this webinar is another step to educate about safety and to point out solutions. The following measures or training courses for more in-depth training could also be considered.

Q: Is the Curve Speed Control assistance system standard or optional and is it available for all trucks?

A: Our Curve Speed Control is available for all counterbalance trucks and for most warehouse equipment.



Q: What kind of fleet management tool does STILL offer and what functions does it have?

A: On the one hand, we offer FleetManager 4.x, a tool to control access as well as for reporting and truck-relevant information such as shock events, etc. On the other hand, our online application allows us to manage the fleet.

On the other hand, our online application neXXt fleet enables fleet management and evaluation of commercial fleet data. It gives a quick overview of the locations where the trucks are in use, arising costs, operating hours or repairs.

Q: How does the small module in the trouser pocket warn the pedestrian in the radio-based system?

A: The radio-based system we were talking about here with an automated system comprises several components that communicate with each other via radio and together form an all-in-one warning system. In addition to modules on the shelves and the trucks, one component is the module for pedestrians.

In the version as a person detection system, a reader/receiver module is installed on a truck or at a stationary point. This module transmits a radio signal which is received and reflected by pedestrian modules. Anybody in the potentially hazardous area can wear the modules and is protected. Based on a so-called end-to-end delay of the radio signal, the system calculates the distance between the truck and the person at all times. If the distance drops below a certain value, a visual and acoustic signal is given to indicate the danger. At the same time, the radio-based system automatically slows the truck to walking speed. The person is also warned by a loud acoustic signal emitted by the personal module; a vibration alarm can be set for additional perception.

Each truck is automatically assigned a speed adjustment when entering and leaving the aisles. Aisles where order picking is carried out can be blocked for the AGVs. The stationary module thus offers additional personnel and collision protection. Speed regulation for special areas is also possible. During manual picking, storage or retrieval of a pallet with an AGV in the aisle on the other side is blocked for this storage location. This effectively prevents the risk of an accident during order picking.

Q: You spoke about the fleet management tool scheduling maintenance and inspection appointments. How do I have to imagine that?

A: In STILL neXXt fleet you can see in a calendar overview when the next safety inspection or maintenance is due for which truck. Optionally you may be notified by e-mail or in the system with a defined lead time. In addition, our responsible colleagues in the service department also see when your trucks are due for a safety inspection and, if possible, take this into account so that it can be covered directly at the next service appointment.

Q: Can any truck be connected to the STILL fleet management tool, regardless of manufacturer?

A: Yes, this is possible if the trucks have a respective communication interface (CAN bus, VDI-4458 interface). We can then retrofit our hardware (card reader) to the trucks of other manufacturers and integrate them into our systems.

Q: For which trucks is the lift height sensor available?

A: The lift height sensor is available for the reach trucks as well as the electric counterbalance trucks from 1.4 - 5.0t. From the middle of the year it will also be available for the IC trucks.

Q: Can the fleet management tool already indicate what kind of defect a truck has, so that the technician can bring the required spare part directly (first time fix)?

A: No, that is not yet foreseeable.



Q: You said that all maintenance and inspection documents can be called up at a glance for an inspection by the Employer's Liability Insurance Association. Is this also recognised by the Employer's Liability Insurance Association or do I still have to be able to present the original paper documents?

A: Correct, you can use the maintenance and repair logbook to make all the required inspection documents available as PDFs and these have also been recognised by the Employer's Liability Insurance Association in this way up to now.

Q: Do you have something comparable to the Linde's interactive high-visibility safety vest on offer?

A: We don't have such a product developed by STILL, but we do have the option to integrate all the products available on the market into our systems. This means that, together with our partners, we can offer you exactly what you need - including high-visibility safety vests, if required.

Q: Are the assistance systems you offer all STILL developments, or do you work with cooperation partners here, and if so, with which ones?

A: The wide range of assistance systems includes both developments by STILL and products from cooperation partners.

In the case of reach trucks, for example, all assistance systems are based on software developed in-house. In contrast, we work with cooperation partners on the radio-based collision avoidance systems mentioned above. This enables us to offer a large portfolio of safety and assistance systems.

Q: Is overload alarm available for telescopic forks? And with different load-centers?

A: Yes, with our optional Dynamic Load Control 2 (DLC 2) we are also measuring the load center.

Q: Is it possible to start without wearing a seat belt or are there any precautions to prevent that?

A: Yes, it is possible to start without a fastened seatbelt. The max. speed will be reduced to 6 km/h.

Q: Up to which year of manufacture can "older" vehicles be retrofitted?

A: That depends on the solution. Many can be retrofitted at will. If this interacts with the truck control system, this must be checked.

Q: Do you have anti-intrusion systems in the truck's circulation area that can only be controlled by the driver? So only the driver can authorise a person to enter his circulation area.

A: There is no system where the driver can rule out the possibility of a person entering the truck's danger zone. However, the driver can alert the pedestrian when a truck is approaching. For example, there are warnings when reversing. This is only activated when the truck is reversing. In addition, there is, for example, the STILL Safety Light, which is switched on automatically when driving in the relevant direction. In addition, the STILL Safety Light 4plus, for example, provides an additional indication of the direction from which the truck is coming.

Q: What further developments will there be in assistance systems?

A: Generally speaking, assistance systems are becoming more and more intelligent. More and more functions are being taken over by the systems that relieve the user in his or her work and automatically support him or her. In the past, for example, you had to actively press a button to centre the forks. Today, the trucks can do this automatically when lowering the forks by means of corresponding assistance functions.

Another example of this: it was already possible in the past to have the truck or the forks stop at a defined racking level, but the driver had to lower the goods into the racking manually, which often ended with the forks being lowered onto the cross beams and the hydraulic lines and chains "hanging empty". When the driver now drove out of the racking, the fork carriage dropped into the free hanging chains. There are now solutions for this too, which automatically prevent this.



Q: If the gate is not yet fully open and the driver drives through the gate, does the system also intervene?

A: If you mean the ceiling sensor, then the driver has to make sure that the gate is wide enough open because the truck detects the gate when already passing it. In case of radio-based systems there can be two scenarios:

- a. If the automated gate detects the truck by sensors, deceleration can be adjusted to the opening process.
- b. When truck and gate communicate via a radio-based system, the truck can send a command to the gate "in time" to open and at the same time, the gate sends the command to the truck to reduce the speed. With that the overall process can be optimised.

Q: Are there alternatives to the active foot guards on pedestrian units?

A: Our pedestrian trucks are "safe by nature", i.e. the chassis is so low that there is no risk of getting the foot caught under the truck. In addition, our OptiSpeed tiller ensures a speed that is adapted to the operator's safety distance.

Q: Is it mandatory to equip the vehicle with all the sensors and necessary things for operation?

A: No, the solutions are all optional and the truck is of course "safe" even without the options.

Q: Will the rear warning device stop the truck completely or only give warning to the operator? Can this device be retrofitted to existing trucks?

A: Both options are available: Warning only or with drivetrain intervention. The solution with warning function can be retrofitted. The possibility of drivetrain intervention depends on the truck-type and age of the truck.

Q: Is it possible to have a communication system integrated into the truck for communication between operators (other employees?) and forklift drivers?

A: Yes, as shown in the webinar, there are radio-based systems that establish a connection between the truck and e.g. pedestrians to warn in hazardous situations.

Q: Is the radio frequency system also suitable for classified areas? Such as ATEX ones.

A: This depends on the supplier and the solution. In principle, ATEX-certified components are available.

Q: Do you recommend sensors (armbands) to automatically regulate the speed of the truck when a pedestrian approaches?

A: This is a radio-based solution that is available. The tags are typically not integrated in an armband but put in pockets or integrated in vests.

Q: Is there a system that prevents collisions in a warehouse between different vehicles?

A: Yes, this is possible. Consultation is highly recommended because this is project business.

Q: Would a jacket with sensors that warns with sound when you are within 10 m of a vehicle, for example, be a solution?

A: In collision avoidance with radio-based solutions, the personal module warns acoustically, visually and by vibration.



Q: Can older trucks be equipped with the new solutions?

A: Many solutions can be retrofitted as required. In case of interaction with the truck control system (truck control), this must be checked.

Q: Do we need the fleet manager software and hardware to use next fleet?

A: No, STILL next fleet also works without Fleet Manager.

Q: What is forward and reverse in the case of the pallet truck?

A: Forward=forks travelling, backwards=forks leading

Q: How is hygiene ensured with the breathalyzer?

A: Every driver has his or her own mouthpiece, they can be changed on the tester.

Q: Should you consider that radio waves might be harmful to people in the long term?

A: No, the range is only 30 metres. In comparison, the "radio waves" are less than what is emitted by mobile phones.

Q: Can the vehicles also be equipped with GPS so that they can be located on a map and one always knows where the vehicles are in the warehouse? That could also be used for security purposes. And can such a system (to GPS) also be installed in halls?

A: There are external systems for outdoor localisation. GPS typically does not work well in closed halls. But there are also external indoor solutions for localisation.

Q: What would be the maximum recommended speed for indoor and outdoor work in a warehouse?

A: This depends on the type of truck and the type of warehouse / space / traffic.

Q: Do you combine the height sensor with the ELOshield system?

A: You can have both systems on one truck.

Q: When using a device to slow down (speed), is there no risk of displacement of the transported load?

A: The deceleration values are set specifically for the operation so that the goods do not slip.

Q: What solutions are needed when using autonomous and human-driven vehicles together?

A: There is no danger from the autonomous vehicles, they are intrinsically safe and cannot cause any accidents due to their design. On the other hand, it happens time and again that manually guided trucks damage the automated or autonomous trucks. To avoid this, radio-based collision avoidance systems are a good solution.

Q: How many sensors offer protection against operating errors?

A: All sensors can prevent operating errors if the measured values are smartly evaluated and used for appropriate assistance functions. The load sensor, for example, makes it possible to prevent overloading (load heavier than 10 % of the nominal capacity).

Q: Regarding the zoning system inside/outside of warehouses, what is the maximum height readable by the sensor inside of the warehouse?

A: The height is 24 m.



Q: Do you have a list of risks in warehouses in order to map these risks and to identify the right safety equipment?

A: There is no generally valid list of risks because every warehouse is different. It is important to analyse the individual risks and find the right assistance functions that fit to your specific warehouse.

Q: Is the device for levelling uneven floors also suitable for outdoors, or is it only for warehouse interiors?

A: Right now, the Active Floor Compensation (AFC) is meant to be used indoors because it can measure an unevenness of 10mm, which is only relevant indoors. In outdoor operation you have floor conditions that are much worse.

Q: Is it possible to have an extract of check-ins per operator with the use of the "Pre Check system" by period, monthly for example?

A: The check-in data are stored within the history file of the pre-shift check (timeline). To receive an extract of the check-ins is not possible at the moment. We can provide this with an alternative option: the FleetManager 4.x.

Q: Are these safety tools also available for the tugger trains?

A: Simple features like for example the safety light are available for all the towing tractors. For more sophisticated solutions like the radio based collision avoidance, you need to individually check the type of towing tractor.

Q: Are the automatically adapting wheels (active floor compensation) also applicable for the fast driving 3 pallet truck?

A: Right now, the AFC is only available for the MX-X.

Q: Warehouse mapping and the use of auto-steering on wire-guided trucks requires a unique pallet standard and increased vigilance. What are the additional safety measures?

A: There are also additional safety features such as a mobile personal safety system on wire-guided vehicles such as an MX-X in narrow aisle. In addition to the personal safety system scanners, there are other safety features or assistance systems such as iGo pilot navigation. iGo pilot navigation, which guides the truck semi-automatically on an optimal route to the defined pallet position. The destination is entered via scanner, terminal or online by the warehouse management system. As soon as the drive lever is actuated, the approach starts automatically. This is especially helpful to store and retrieve at large heights. Eliminating searches and losing direction in the warehouse relieves the operator and enables new employees to be trained quickly. With iGo pilot safety, areas in the narrow aisle warehouse where special safety regulations apply are defined in advance. With up to 15 safety configurations, the special features of the warehouse topography can be defined, e.g. height and speed limits, obstacles or braking distances.