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## Press release bauma 2019

### **Network Non Road Mobile Machinery – Driving force in safety, productivity and innovation regarding the operation of mobile machines**

At bauma 2019, the world's largest construction fair, the Network NRMM ("Non Road Mobile Machinery") invites all interested parties to get informed about the state of the art technology for a linked "human - machine - computer - world" in the field of NRMM.

Technological innovations for improving safety, productivity and efficiency regarding the operation of non road mobile machinery will be presented.

For more than ten years now, initiated by the German Federal Ministry of Labour and Social Affairs, the network's members further the development of person and object recognition technologies for non road mobile machinery in nearly all fields of application, ranging from construction, agriculture and forestry to road traffic.

The network takes action in every field where possible collisions between people, machines and materials have to be prevented effectively.

Initially, vision-aiding tools in the form of camera-monitor-systems as well as warning assistants based on radar and ultrasound were the dominant applications which nowadays can be expanded upon with digital assistance systems and permanently improving image processing technologies to create sustainable and interconnected solutions up to Building Information Modeling (BIM) and artificial intelligence.

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Partner von

**VISION ZERO.**  
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Alongside workplace safety issues, developments in the fields of data and industrial security are becoming more and more important.

In order to effectively support manufacturers, operators and employees in the aforementioned complex challenges, the network is broadly diversified. Manufacturers and suppliers are involved as well as experts of economy and research, authorities of industrial safety and market surveillance, trade associations and unions.

Workplace safety is teamwork, which the network fully commits to. Cooperation with “VISION ZERO” complements the exhibition stand. The prevention strategy of “VISION ZERO” aims at creating a working environment where nobody is injured, lethally injured or injured to the point of lasting damages.

*Further Information:*

[www.safety-machinery.com](http://www.safety-machinery.com)

*(312 words, 2.198 characters)*

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## Information about the network partners represented at the exhibition stand

- Brigade Elektronik GmbH
- ITK Engineering GmbH
- MEKRAtronics GmbH
- Motec GmbH
- Sick AG
  
- Prevention strategy „Vision Zero“
- KAN

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## BAUMA Messe – New products from Brigade

The Construction Industry, as one of the most dangerous working environments, has long been a target for Brigade in pursuit of our Mission to avoid collisions and to save lives. Construction and Mining industries have unique challenges that require focused solutions and Brigade will present two new developments at the Bauma Messe.

Brigade's Backsense radar sensor systems detect people and objects in vehicle blind spots, significantly reducing accidents. They work effectively in harsh environments and when visibility is often poor due to dust, smoke and fog.

Due to the number of complex blind spots on a vehicle, a single radar cannot always provide the detection required and numerous in-cab displays for multiple radars can be more of a distraction than a benefit. Brigade's Backsense® Networked Radar allows up to 8 radars to be interlinked to cover all blind spots around the machine.

Brigade will also feature our newly certified Cross-Traffic Camera System that has been developed to fulfil the requirements of VkbI. 23/2016, Recommendation Nr. 180. This will allow vehicles fitted with equipment on the front, pushing the drivers position back several meters, to safely drive on public roads and negotiate busy junctions.

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In addition to these new developments Brigade will also present a selection of products suitable for the constraints and characteristics of the Construction Market, including our range of reversing sounders and the Backeye 360 system, which allows a birds-eye view of the vehicle and is particularly suitable for negotiating narrow spaces or for working in close confines with other vehicles and equipment.

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*(273 words, 1.775 characters)*

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## ITK Engineering Develops Reliable Object Detection Systems

ITK Engineering is to present its 3D terrain mapping application at the bauma 2019 trade fair. This smart camera-based assistance system detects people and objects on terrain where visibility is poor. Vendor-agnostic, it integrates into mobile machinery of different manufacturers.

The company will also present concepts and models that have proven their merits in practice, for example, a safety surveillance application with redundant radar sensors. Using a concrete mixing plant serving as an example, ITK Engineering will demonstrate how a safety-critical system can be created and configured in the virtual realm using optical ray tracing.

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*(113 words, 804 characters)*

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## MEKRAtronic

### 360° Surround View for construction machines

The idea of the 360° MEKRA Surround View System is to combine the proven extreme robust cameras with the technology of the monitor to create a Surround View.

The system is expandable to up to four cameras. The driver can decide what fits best his needs; Single picture, picture in the picture or split screen - this can be set up or the driver can take advantage of the factory setting.

What that means is this: the view can be focused to the crucial and necessary area of the machine to adjust it to the ideal view, depending on what needs to be in focus at that particular time. For instance: the rear view camera transmitting the view with a combination of side and rear view camera up to the complete surround view.

The use of proven standard components means also that no processing unit is needed to combine the pictures; therefore, no calibration with the first time use nor adjusting at a later point in time will be necessary. This also means no new blind spots will occur with machines that are more complex.

The fact that these cameras can be mounted flexible on the machine has proven to be very convenient; this gives you the opportunity to mount it with the consideration of the type of machine. This system is not just great for the initial factory fitting, it is ideal for retrofit due to its minimal time and effort required for the installation.

MEKRA products are very suitable for the high standards and requirements in the Construction and the surface mining industry.

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Camera and mirror systems have been part of the standard equipment for new machines and vehicles of name brand manufacturers.

Besides the Surround View for construction machines, a radar blind spot monitoring system gets a lot of attention and recognition. Different sensors give warning signals to the driver/operator when persons or obstacles are close by. The new generation of MEKRA monitors has an interface for visual display and can be combined with different sensor systems.

We work directly with PRECO Electronics; their radar sensors are compatible with our MEKRA systems and can be used in variety of ways. The sensors are also compatible with the majority of displays of other manufacturers or can be used as a stand-alone version in combination with a small display. The advantage of the PRECO sensors are its high durability, the precise detection of persons and obstacles from the sensor surface as well as the easy calibration of the required detection zones. The sensors adapt easy to the requirements in the detection and warning field - just like our camera systems.

## Cross-Traffic Camera Monitor System

When using mobile work machines there are rules and regulations to ensure the safety for accurate and secure operation of the machine in the traffic and with fellow road users.

Mobile work machines are oversize in length, which is due to the basic construction as well as its use in combination with a tractor lifting mast, exchangeable attachments or front mounted equipment. Oversize is measured from the steering wheel towards the front end of the machine or machine equipment combo; if it is longer than 3.5 meter then it is considered oversize.

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What this actually means is this: most modern farm equipment already exceeds the mandatory 3.5-meter front-end limitation when it leaves the factory, or at the latest when a front-mounted implement is added. In this case the field of vision is obstructed to such an extent that the driver cannot safely enter particularly critical locations, like intersections or driveways.

Here is where German law requires the use of a signaller who will guide the driver of such a vehicle through challenging traffic flow situations. In practice, however, this rule is hardly ever implemented, or if it is, poses a significant accident risk to the signaller. To complicate things even further, modern farm equipment is often not approved for two-person-operation on public roads which means that the signaller has to travel in a separate vehicle.

MEKRAtronic has developed a solution for this problem: the cross-traffic camera monitor system (Querkamera-Monitoring-System, Q-KMS) is designed to eliminate field-of-vision limitations due to excess front-end dimensions. The system is mounted at the front-end of the vehicle and can be activated on demand. The extremely rugged “Professional” version features a camera that is itself housed in a stable, extendable enclosure. This makes the system suitable for winter service vehicles and an excellent choice for municipal vehicle operators and contractors. Any requirements regarding functionality, operation, image quality, and display are fully met, as long as the system is configured and installed in accordance with the relevant recommendations provided by the German Federal Ministry of Transport and Digital Infrastructure (see *Verkehrsblatt* 23/ 20116-180). Private farmers will prefer the straight-forward “Basic” version which is available for about half the cost. This system meets legal requirements as well (i.e. is “certifiable”), but is subject to certain restrictions regarding poor visibility and weather conditions potentially limiting its use during the winter season which is generally not a deal

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breaker for farmers. Essentially, the “Basic” model can be easily upgraded to the “Professional” version by using mostly the same components.

After the system has been installed and approved by the German technical inspection service TÜV (including a field-of-vision test), it will be officially entered in the vehicle’s registration papers. Thanks to the extended field of vision, farmers and municipalities can achieve a significant degree of risk mitigation and at the same time lawfully operate their vehicles without using the otherwise mandatory signaller.

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*(942 word, 5.907 characters)*

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## Motec GmbH

Motec specializes in the development and production of camera-based driver assistance systems for utility vehicles and mobile machinery.

Motec protects lives by making mobile machinery and their surroundings safer.

Its cameras make operators' work easier by reducing stress and uncomfortable physical movements.

And, it helps companies become more successful by accelerating processes and avoiding damage.

Motec has over 25 years of experience in the construction and manufacture of robust, reliable mobile cameras, including the associated electronics.

Motec camera systems do their part in complying with the requirements of the Machinery Directive 2006/97/EC.

For excavator and front-end loaders in particular, the Motec camera monitoring systems meet the visibility requirements defined in ISO 5006 and ISO 16001.

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## Sick AG

Providing innovative and intelligent sensor solutions, SICK has been shaping the logistics, factory and process automation sector as one of the leading global sensor manufacturers for decades. With industry knowledge and a wide sensor-technology portfolio, SICK is the ideal partner for providing sensor solutions for mobile machines.

The main tasks of sensors in this field include collision awareness, contour guidance, positioning, and detection. With these in mind, SICK offers a comprehensive portfolio ranging from standard sensors and intelligent sensors with integrated application algorithms through to complex system solutions, thus developing tailor-made sensor solutions for construction and mining machinery manufacturers.

Integrating sensors and sensor systems in construction and mining machines create intelligent solutions suited for daily use that meet customer expectations both in terms of an increased yield and lower process costs.

### Collision awareness

Driver assistance systems based on SICK 3D vision sensors or LiDAR sensors reliably detect blind zones around mobile machines and warn the operator of potential sources of danger or accidents in good time. This means the driver is able to identify and prevent possible collisions early on. As a result, damage to the machine and the surrounding area is rare. This reduces the machine downtimes and repair costs.

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## Contour guidance

Driver assistance systems for contour guidance based on SICK LiDAR sensors increase the efficiency of construction and mining machines, while simultaneously relieving the strain on the operator. Thanks to intelligent sensors with integrated application software, the recorded raw *data and the vehicle data are directly evaluated by the sensor.*

Application-relevant results are therefore available without resource-intensive processing in the driver assistance systems of the machinery manufacturer.

## Positioning and detecting

Sensors such as encoders, inclination, proximity and ultrasonic sensors, as well as pressure and level sensors manufactured by SICK, are the basis of numerous positioning and detection tasks in construction and mining machines.

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(317 words, 2.228 characters)

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## **VISION ZERO. Zero accidents - healthy work!**

VISION ZERO is the forward-looking prevention strategy of BG RCI. It is based on the conviction that all accidents and occupational diseases can be prevented. The aim is to ensure that no one is killed, seriously injured or ill at work. This vision is realised jointly when safety and health are recognised as elementary values by all and everyone acts responsibly. Successful prevention protects life and ultimately also serves the sustainable success of every company.

VISION ZERO can be achieved if committed entrepreneurs, motivated executives and vigilant employees contribute to VISION ZERO and work for a safe and healthy working environment.

Oftentimes, great things can be achieved with small steps - for example through a good role model, consistent leadership and conscious safety and health-oriented action.

On the way to individual implementation of VISION ZERO, the BG RCI has developed numerous prevention offers. These include for example guidelines and apps like the "Machine check".

*Further information:*

[www.bgrci.de/vision-zero](http://www.bgrci.de/vision-zero)

*(172 words, 1.137 characters)*

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## KAN – Kommission Arbeitsschutz und Normung

Founded in 1994, the Commission for Occupational Health and Safety (OH&S) and Standardization (KAN) has the purpose of observing the standardization process and ensuring that standards makers devote sufficient attention to the needs of OH&S.

The OH&S interests of various institutions – the social partners, the State, the German Social Accident Insurance (DGUV) and DIN – are collectively represented in opinions on current and planned standardization projects. KAN itself is not a standardization body; its resolutions on OH&S and standardization take the form of recommendations which are based on as broad a consensus as possible of all the relevant institutions involved in OH&S.

### KAN focuses on

- formulating fundamental OH&S positions on important issues of the standardization process,
- assessing the content of standards to determine whether they meet the OH&S requirements from the German point of view and comply with the protection goals specified in European directives,
- exerting influence on standardization programmes and mandates (mandates are issued by the European Commission to the private CEN/CENELEC standards bodies),
- checking whether there is a need for standardization from the point of view of OH&S,
- obtaining and providing or distributing information on standardization work for the OH&S experts

KAN addresses a broad range of topics and is actively involved in the European standardization of earth-moving machinery.

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