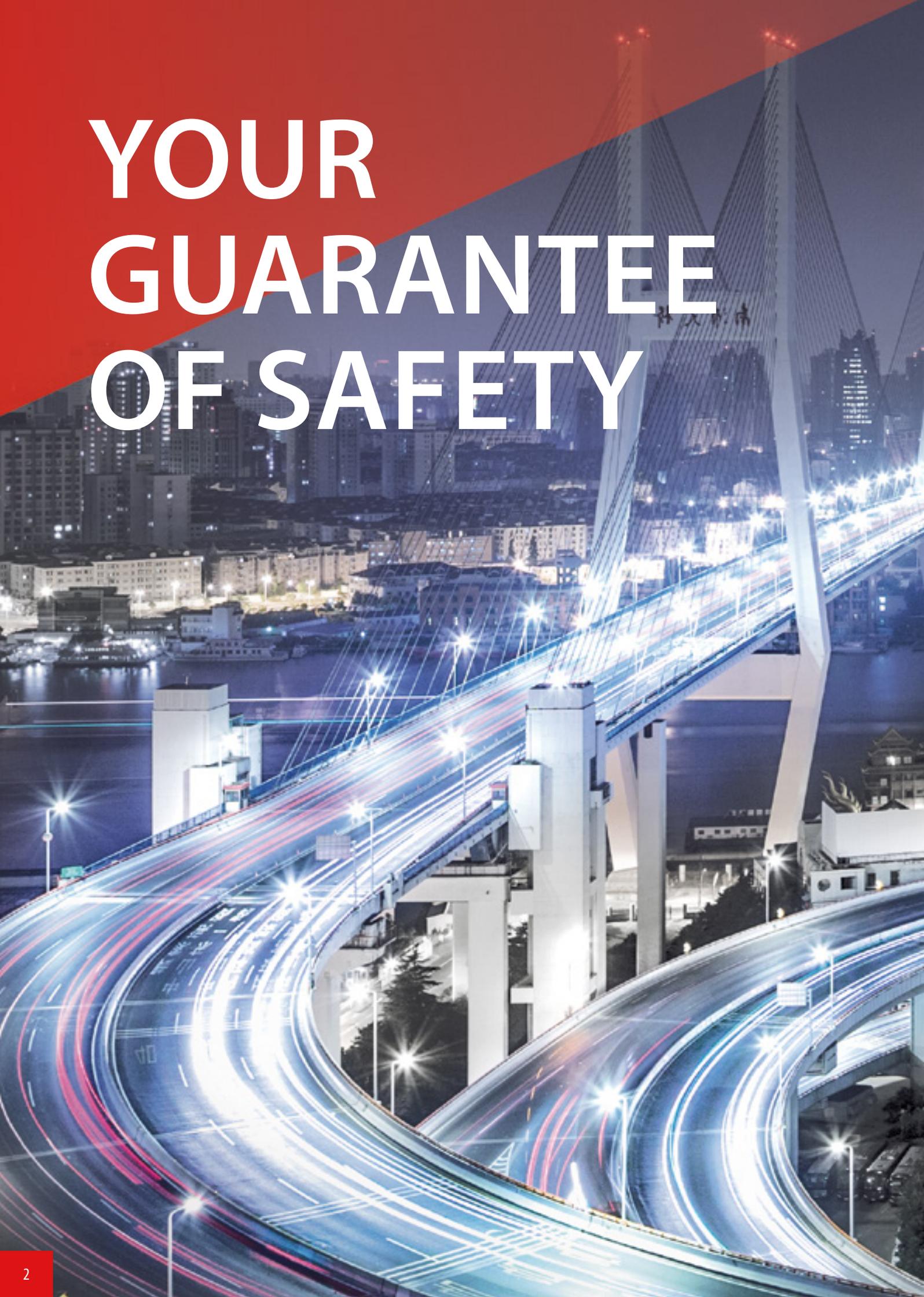




WE POINT THE WAY

MOBILE
CRASH PROTECTION SYSTEMS
2020

YOUR GUARANTEE OF SAFETY





Dear customers, partners and prospective customers,

Road works in traffic conditions are a road safety hazard, but absolutely necessary for maintaining infrastructure. Scientific studies have confirmed that the risk of accidents is particularly great in the case of road works of short duration and mobile works.* Mobile crash cushions (also known as truck mounted attenuators, abbreviated to TMA) offer reliable protection. These safety devices are not time-consuming or expensive to deploy and significantly reduce the risks to personnel and road users.

As a global leader in the industry, Nissen offers you two mobile crash protection systems that meet international standards and feature numerous advantages. But don't take our word for it – have a look at our solutions and benefit from an additional safety guarantee.

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Commercial manager and authorized representative

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Managing Director and Shareholder

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* Institute of Highway Engineering, RWTH Aachen University: Investigations on the effectiveness of Truck Mounted Attenuators (TMA)

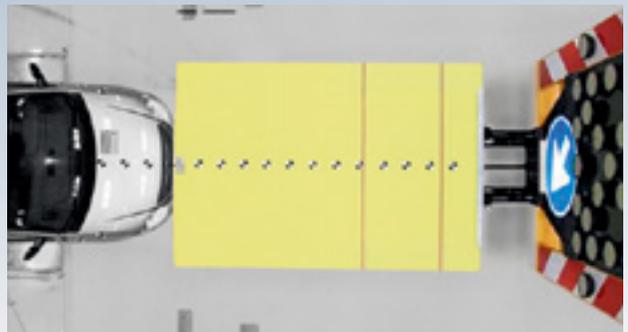
DUAL PROTECTION

Nissen's mobile crash protection systems combine two important functions: the necessary advance warning or barrier deployment for traffic lanes and protection of personnel, road users and service vehicles in the event of a rear-end collision.

Each of Nissen's crash protection systems consists of three components: a warning panel allowing of customisable configuration, a crash absorber to absorb kinetic energy, and a docking station that can be fitted to any of your service vehicles.

The system is folded up out of the way during transportation.

Once on site, the service vehicle is moved into the relevant position, the crash absorber is folded down via electrohydraulic action, and the warning panel is activated. Advantage: No additional personnel are needed for operation of mobile crash protection systems. In addition, Nissen's crash protection systems require very little maintenance.

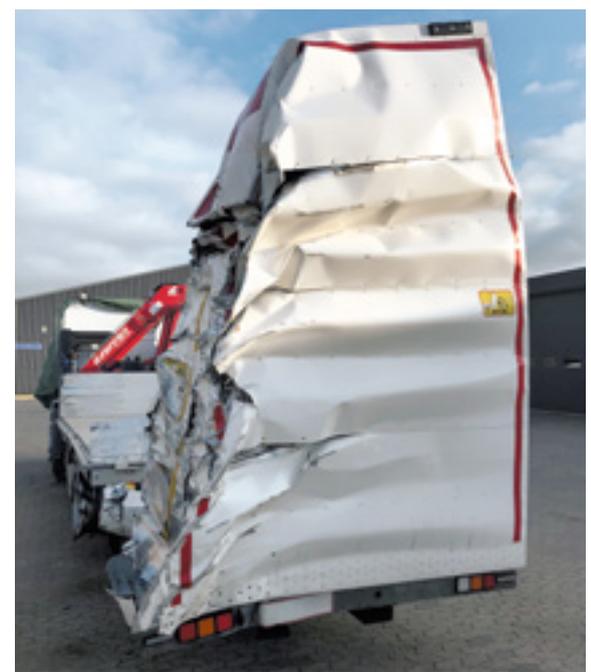


IN ONE SYSTEM



EFFECTIVE DUAL PR

Mobile crash protection systems reliably protect people and material. There were no dead or seriously injured people in the rear-end collisions shown here. Therefore, you too should decide for a dual protection.



PROTECTION

During mowing of the median strip on the motorway, this rear-end collision happened. The driver of the car dodged the queue of cars in the right lane and crashed into the crash protection system. The pre-warning on the hard shoulder was hidden by high level truck traffic, so the driver noticed the danger zone too late. The driver of the car and also the driver of the truck got out of their vehicles unharmed – thanks to the Rambo II crash protection system.



Even this serious rear-end collision has passed off smoothly – when this picture was taken the driver had already left the vehicle.



The classic

RAMBO II

Proven across the world: RAMBO II incorporates the most popular approach to the design of mobile crash cushions. Its advantages have already been demonstrated in numerous rear-end collisions.

The RAMBO II crash absorber consists of a lightweight aluminium cushion incorporating internal honeycombs that yield on impact. In the event of a collision, these absorb the kinetic energy, thereby reducing the risk of injuries and damage to the service vehicle. The RAMBO II is fitted to the vehicle using a docking station plus electrohydraulic device for the folding action. When the system is not in use, the hydraulics hold the cushion out of the way in a vertical position. For the RAMBO II, service vehicles from 7.5 tonnes upwards are recommended.

These regulations are often even required, for example in the countries of Scandinavia, in Belgium and The Netherlands, Slovenia, Hungary, Croatia and Austria.





Mobile crash protection systems

RAMBO II



CRASH ABSORBER

- Lightweight aluminum cushion with flexible honeycomb structure
- Corrosion-free and waterproof
- Vehicle lighting
- Tested based on NCHRP 350
- Different paintwork in RAL colours possible
- Dimensions: 2310 x 3314 x 707 mm (W x L x H)

DOCKING STATION

- Robust steel construction
- Easy assembly with safety bolts
- 24 V hydraulic unit
- Dimensions: 2366 x 1397 x 600 mm (W x L x H)

WARNING BOARD

- Warning board according to German standards, 3600 x 2200 mm
- Chevron patterned plate and directional arrow with microprismatic retroreflective foil
- Light arrow system with 2 LED advance warning lights 340 mm Ø (L9H/M according to EN12352) and 25 individually monitored LED warning lights 220 mm Ø (L8H according to EN12352) with automatic brightness adjustment.
- Directional arrow with motor revolution, mechanical emergency adjustment and automatic light arrow adjustment

ACCESSORIES AND OPTIONS

- Optional LED variable message signs instead of the light arrow system and / or the motorized directional arrow
- Combined cable / radio remote control with touchscreen
- Transport trolley to replace the system
- Rockinger coupling
- Forklift holder for simplified assembly
- XL battery box for holding up to two batteries and other accessories
- Battery guard to protect the electronics
- Acoustic signal transmitter for the remote control
- Control and monitoring system



Rambo II version Finland



Rambo II in application

Technical data

Total length	4466 mm
Total width	2366 mm
Height lowered	(Work position): 3664 mm
Height lifted	(Transport position): 3719 mm

Mobile crash protection system RAMBO II

Ref. No.

Warning board with docking station and crash cushion Rambo II

129 741-XXX-XXX



More information

NIS-01649

To be entered on nissen-germany.com



The innovative

GUARDIAN



**With the GUARDIAN, Nissen is striking out in a new direction.
Its innovative design requires less material, thus saving on weight and costs.
In addition, this system is even more compact in use.**

The Nissen GUARDIAN is a solid steel design which, in the event of a collision, absorbs kinetic energy through structural deformation. Specifically, this means that if a vehicle collides with the GUARDIAN, the square tubes are pushed into each other and are spliced apart. This system, developed exclusively by Nissen, features numerous advantages:

- Cost-saving design that is economic on material and ensures excellent safety
- Cost savings thanks to replaceable components after a collision
- Easy to handle, as no tools are needed for fitting and removal
- Reduction in clearance height thanks to compact folding design



Mobile crash protection systems

GUARDIAN



CRASH-ABSORBER

- Robust steel construction with high security
- Low clearance height due to space-saving folding construction
- Cost savings through interchangeable elements after an impact
- Vehicle lighting
- Tested based on NCHRP 350
- Dimensions: 2280 x 4313 x 505 mm (W x L x H)

DOCKING-STATION

- Robust steel construction
- Simple and tool-free installation
- 24 V hydraulic unit
- Forklift holder for simplified assembly
- Large battery box for mounting up to two batteries
- Dimensions: 2472 x 2291 x 733 mm (W x L x H)

WARNING BOARD

- Vertical extendable warning board according to German Standards, 3600 x 2200 mm
- Chevron patterned plate and directional arrow with microprismatic retroreflective foil
- Light arrow system with 2 LED advance warning lights 340 mm Ø (L9H/M according to EN12352) and 25 individually monitored LED warning lights 220 mm Ø (L8H according to EN12352) with automatic brightness adjustment.
- Directional arrow with motor revolution, mechanical emergency adjustment and automatic light arrow adjustment

ACCESSORIES AND OPTIONS

- Optional LED variable message signs instead of the light arrow system and / or the motorized directional arrow
- Combined cable / radio remote control with touchscreen
- Battery guard to protect the electronics
- Acoustic signal transmitter for the remote control
- Control and monitoring system



Transport position



operating position

Technical data

Total length	6855 mm
Total width	2472 mm
Height lowered	(operating position): 3666 mm
Height lifted	(transport position): 2881 mm

Mobile crash protection systems GUARDIAN

Ref. No.

Warning board with docking station and crash absorber GUARDIAN

129 760-001



More information

NIS-02159

To be entered on nissen-germany.com



PREPARED FOR EVERY EVENTUALITY

Nissen's mobile crash protection systems can be configured to suit your exact requirements.

You can choose conventional warning panels with light arrows, variable message signs from Nissen's VarioSign LED System, or a combination of both. In addition, designs incorporating sliders or lift functions are also possible. For vehicles with trailers that will not use the universal coupling, Nissen offers you practical adapters.

TMA with slider

- Vertically extending warning panel
- Chevron patterned plates and directional arrow with microprismatic retro-reflective foil, type RA2C
- Luminous arrow system with two LED-TL advance warning beacons (WL5) and 25 separately monitored LED-TL warning beacons (WL6)
- Directional arrow with motor revolution, mechanical emergency adjustment and automatic luminous arrow adjustment



TMA with light arrows

- Light arrow device
- Chevron patterned plates and directional arrow with microprismatic retro-reflective foil, type RA2C
- Luminous arrow system with two LED-TL advance warning beacons (WL5) and 25 separately monitored LED-TL warning beacons (WL6)
- Directional arrow with motor revolution, mechanical emergency adjustment and automatic luminous arrow adjustment



Design Germany



Design Finland

TMA with LED variable message signs

- Powder-coated aluminium profile housing (AlMg3)
- Full matrix for displaying freely programmable static or dynamic texts and symbols to animations
- Good recognizability of the signs from almost every perspective and even from long distances
- Certified in compliance with EN 2966:2005+A1:2009 CE
- Grid dimension 20 mm
- Optionally classic (4 colours) or RGB (256 colours)
- Premium quality light-emitting diodes with a long service life
- Continuous brightness adjustment, automatic or manual
- Available in different display sizes



SAFETY TO A STANDARD

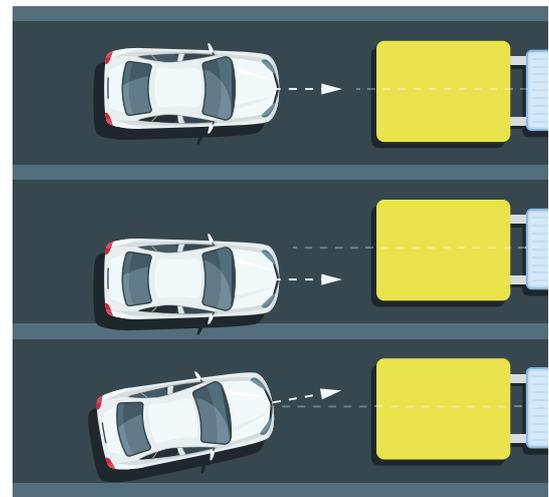
Nissan's mobile crash protection systems are tested using one of the strictest standards for this type of protective device: NCHRP 350. This standard was devised in the USA, which is where most mobile crash protection systems in the world are currently used. According to current estimates of the Institute of Highway Engineering, RWTH Aachen University, this adds up to more than 10,000 individual units.



Tested in all conditions

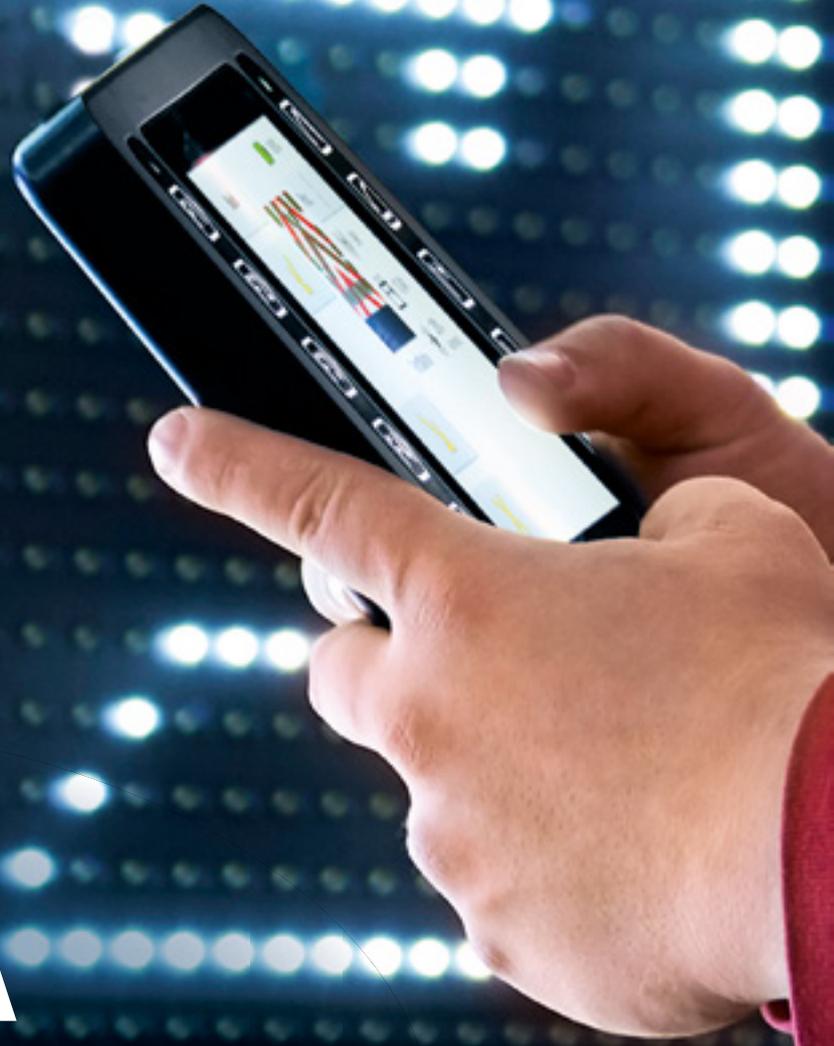
Our mobile crash protection systems meet and exceed the requirements of the four most common crash tests up to 100 km/h:

Head-on crash with vehicles of 900 and 2,000 kg in weight, respectively, offset crash and crash at an angle. In all tests, our mobile crash protection systems achieve top scores.



Test designation	Crash conditions		
	Vehicle	Nominal speed of vehicle (km/h)	Nominal angle (degrees)
3-50	900P	100	0
3-51	2000P	100	0
3-52 ^h	2000P	100	0
3-53 ^h	2000P	100	10





SAFETY FROM A SINGLE SOURCE

Everything under control

Our mobile crash protection systems are compatible with the Nissen operating concept. Both the RAMBO II and the GUARDIAN can be simply and conveniently operated using the Nissen Touch Remote Color and Standard or Pro Remote controls. This means you can control almost all the functions of your mobile crash protection system via a cable or wirelessly with Bluetooth. This includes raising and lowering the crash absorber, the lights on the warning panel and, of course, the signals and wording on our LED variable message signs.

A particular highlight: Both remote controls are compatible with all Nissen systems and can access up to eight devices.

Advantages at a glance

- Intuitive and safe operation
- Optional cable or wireless control
- Backlit keypad
- Uniform operating concept for all Nissen systems
- Robust and impact-resistant housing



Touch Remote Colour

- Large 5.7" full colour touch screen display with Automatic day/night adaptation
- multicolour LED-status indication (to show up e.g. radio operation, charging status and error signal)
- Combined cable/radio remote control
- Operation of the most important features via keypad
- Favourite combinations freely programmable via touch screen
- Functions keys freely programmable
- Useable for all Nissen systems
- max. 12 radio connections storable



Dimensions (LxWxH)
211 x 141 x 39 mm



Weight
680 g

Touch Remote Colour

Ref. No.

Touch Remote Colour
radio/cable remote control (bluetooth) with touch screen
and illuminated keypad (without cable)

329 236-1

Accessories and Spare parts

Ref. No.

Charging tray for remote control Touch-Remote Colour without cable function,
2 m connection cable

329 238-1

Charging tray for remote control Touch-Remote Colour with cable function,
2 m connection cable with 6 pole sleeve plug

329 238-11

Charging tray for remote control Touch-Remote Colour without cable function,
2 m connection cable with vehicle plug

329 238-2

Operating time with one battery set

Lithium-Ferro-Akku. 6000 mAh

Operation time: approx. 12 hrs.

Charging time batteries:

- on charging cradle: approx. 4 hrs.

- with active cable connection: approx. 8 hrs.



Connector dashboard holder



Charging tray with vehicle plug



Touch Remote in the charging tray



6 pole sleeve plug and vehicle plug



More information

NIS-01742

To be entered on nissen-germany.com

Standard- and Pro-Remote

- Universal remote control for secure and easy operating also of complex devices via cable connection
- Large operating keys
- Illuminated keypad
- Easily readable large display with additional touch screen function



Dimensions (LxWxH)
215 x 130 x 45 mm



Weight
Standard-Remote: 480 g
Pro-Remote: 700 g

Standard- and Pro-Remote

Ref. No.

Pro-Remote II radio/cable remote control - Bluetooth touchscreen (without cable)	329 231-12
Standard-Remote cable remote control touchscreen (without cable)	329 232-2

Accessories and Spare parts

Ref. No.

Holder and charging cradle for radio remote control Pro-Remote	329 230-1
Holder and charging cradle for radio remote control Pro-Remote 90 – 264 V AC version including adapter useable for EU, US, UK and AU	329 230-11
Holder and charging cradle for radio remote control Pro-Remote with 2 pin vehicle plug	329 230-12
Holder for cable remote control Standard-Remote	329 230-2
Dashboard holder with ball joint arm for remote controls for mounting at holders	329 230-21



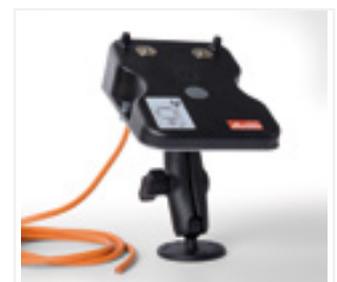
Standard-Remote



Pro-Remote



Holder and charging cradle



Holder and charging cradle with dashboard holder



More information
NIS-01785
To be entered on nissen-germany.com

MORE FUNCTIONS MORE ADVANTAGES

Nissen offers you an extensive choice of accessories allowing you to extend the functionality of your mobile crash protection system and customise it to your specific requirements.

Electrical equipment

Battery monitor

Ensure the long-term performance of your mobile crash protection system. The optional battery monitor sends you a warning in advance, before the capacity of your battery is too low for operation. The device also monitors the charging process and protects against overloading. This way, you can effectively prevent unforeseen breakdowns and damage to the electrical system.

Charge booster

The on-board battery of your mobile crash protection system does not get a sufficient charge from the generator of the towing vehicle. After the engine is started, the charging voltage and the charging current are regulated to protect the starter battery. Our charging boosters ensure that the battery is reliably charged, even over short distances. This increases the service life and improves the reliability of your warning trailer.

Operation

Operating hours meter

The detailed documentation of your mobile crash protection system allows you to detect wear and tear in advance and replace parts like bulbs, batteries or mechanical components before they fail. The operating hours meter also provides you with critical information to make your billing easier.



Interface package XML

This module enables secure data exchange between several devices. It makes it possible to remotely control mobile crash protection systems equipped with the XML interface package – including all functions. In addition, your warning trailer can also send data to control systems.

NiBus modem

This digital data interface lets you control and monitor our mobile crash protection systems up to safety standards, regardless of your location. In addition, the NiBus modem can also be used to integrate systems into common construction site management systems.

Equipment

Rockinger coupling

Equip your mobile crash protection system with a robust Rockinger coupling for trailers weighing up to 3.5 tonnes and increase your potential use.



Height adjustment in transport position

Our RAMBO II mobile crash protection system can be equipped with an additional hydraulic circuit allowing the system to be lowered in the transport position. Ideal for clearing low bridges, which are common in countries like e.g. Switzerland.



CUSTOMISATION AT A GLANCE



Use the appropriate accessories to customise your mobile crash protection system to your exact requirements:

	RAMBO II	Guardian
Version for road works head location	•	•
Slider version	•	Standard
Mounting plate for attaching to the towing vehicle	•	•
Rockinger coupling	•	•
Transporter for docking station	•	•
Fork lift adapter for docking station	•	Standard
Battery box, XL	•	Standard
Battery monitor	•	•
Charger, 12 V 35 A	•	•
Power supply plug	•	•
Charging connector, 12/24 V	•	•
Cable drum	•	•
LED light module for toll recognition, Switzerland	•	•
Height adjustment in transport position	•	
Preparation, CB warning system	•	•
CB warning system	•	•
Preparation, NiBus modem	•	•
NiBus modem	•	•
Monitoring device	•	•
XML interface package	•	•
Onboard power supply, 12 V	•	•
Onboard power supply, 24 V	•	•
Onboard power supply, LED, 12/24 V	•	•
Manual control, Pro Remote	Standard	Standard
Lead/gel battery (140 Ah or 210 Ah)	•	•
Lead/acid battery (180 Ah or 230 Ah)	•	•
Foil for crash cushion, red/white	•	•
Foil for crash cushion, red/yellow (Finland)	•	•
Foil for crash cushion, red/yellow-green (Norway)	•	•
Hook-lift container for warning panel	•	

TOGETHER FOR YOU

Just as our developments convince you through their quality and functionality in use, we consequently ensure that you always feel well advised by Nissen. Our team of experienced and competent specialists will find a solution for all of your concerns.

Whether you ask for help from your contacts in Tönning or on-site through our internationally organized sales department - we are a team and are always there for you. What can we do next for you?



A CALL IS ENOUGH



Do you need a larger delivery of safety barriers at short notice? Do you want an offer for a mobile warning trailer or do you have questions about the versatility of our VarioSign LED systems? Our team in Tönning can be reached by phone and e-mail. We speak your language and handle your concerns as quickly and reliably as possible. And there is always time for a few personal sentences - we look forward to hearing from you!

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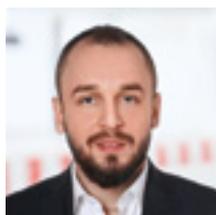
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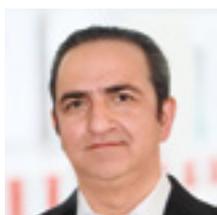
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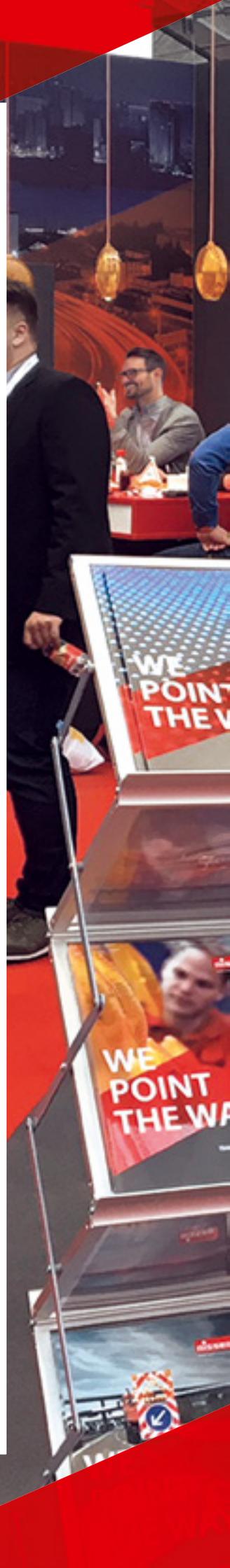
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Important:

All products may only be installed and operated by trained personnel. Instructions for use, installation instructions and the relevant regulations must be observed strictly.

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