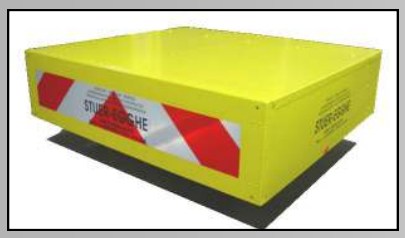
CRASH ATTENUATOR

CRASH ATTENUATOR incl signalling bord with light arrow and fully automatic controller

New model: "Julietta"

Equipped with COC approved rear bumper, now successfully tested



Cushion Type 100K is conform with the model tested by TUV Rheinland TNO TTAI Automotive International in the Netherlands and is fully conform with the American Regulations NCHRP350 described test levels 3-50, 3-51, 3-52 and 3-53 for speeds up to 100 km/h.
The test levels 3-51, 3-52, 3-53 have been conducted with a European Multi Purpose Vehicle. The mass of the carrying vehicle inclusive mounted crash attenuator equalled respectively 9315 kg, 9330 kg and 9345kg

2 Types

TESTLEVELS
following TTAI-rapport

Type 70 K	Type 100 K
2-50	3-50
2-51	3-51
2-52	3-52
2-53	3-53

ONLY APPROVED
CRASH ATTENUATOR

Made in Belgium

Crash cushion

- Corrosion free and waterproof
- Equipped with lighting; fully operational when working/driving
- Rear corner protection left and right
- Electro-hydraulic levering of the crash attenuator
- Standard automatic control from the driver's seat
- Coating following EN ISO 11925-2 (EC E)
- Standard surrounding lighting installed
- Acoustic signal for levering the crash cushion

A crash attenuator is a cushion of some sort, which absorbs the shock of a collision. It is a wrinkling zone. The crash cushion is parked upstream of the team of workers and acts as a shield against a possible colliding vehicle. In case of collision, the cushion will be crushed and will be deformed; during deformation the crash cushion will absorb the energy of the collision. The energy absorption happens gradually and the driver isn't stopped suddenly at once.

Coupling mechanism:

- Heavy metal construction
- Hydraulic cylinders for levering the cushion
- The cylinders are operated with an electro-hydraulic pump 12 or 24V
- Approved rear bumper

Mounting

- Coupling frame with adjustable king pins (height)
- Quick coupling mechanism of the whole unit for easy handling onto another vehicle
- Maximum 3 cable connections with the vehicle: driving lighting, control panel and optionally a 24V connector for the battery isolator.

- Fuly in house R&D and manufacturing CE
- Sales
- Rental
- Repair & maintenance

The cushion is easily changed and replaced in case of damage or collision

STUER-EGGHE
www.stuer-egghe.be
crash attenuators - roof signalling
mobile signalling - trailers - bodywork
Industriepark Noord 17a-23
9100 Sint-Niklaas
Tel 03/766.04.04
info@stuer-egghe.be

Signalling on the crash attenuator

Signalling panel

- Retroreflective red & white striping
- Optional traffic sign and pre-signalling sign
- Traffic sign (A31) of 1100mm
- Repositionable sign D1 (900 mm)

LED Arrow lights

- 22 LED Arrow Lights (200mm) light up left arrow / right arrow / cross
- LED's take automatically the same position as the rotating white arrow mounted on the blue sign
- Boven en onder de pijllichten bevinden zich telkens 2 x 2 megaledlichten Ø 200
- Fully automatically operated from the driver's seat
- 2 x 2 mega LED lights (200mm) are mounted in the corners of the signalling panel
- The LED lights are conform the regulations EN 12352
- The illumination of the lights is controlled automatically by a light sensor. Depending on the ambient light, the illumination of the LED lights will vary. When operated in daylight the illumination will be higher. During night, the illumination will be lower in order to overcome dazzling.

The complete module is hot-dipped galvanized and fully conform all the regulations and additional requirements.
Conformity with other regulations are possible.

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The signalling panel is fixed onto the crash attenuator and fully tested !!!

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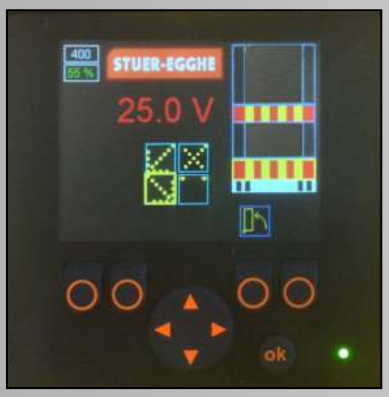
Safety precautions for the crash attenuator

Locking / Safety

Mounting of the cushion with safety pins!



Full automatic operation

Operation

Stuer-Egghe mounts a fully automatic control unit for the safety of your workers

The control panel with LCD-screen and functions buttons enables operation from the driver's seat:

- Position the crash attenuator (lowering and levering of the crash cushion and the upper sign panel **while driving**)
- Choosing the function of the light arrow
- Announcement on the LCD-screen of the position of the light arrows

The movement of the crash attenuator can be stopped immediately with the emergency stop button

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Pre signalling mounted on the crash attenuator

The fluorescent orange signalling panel (F79) has been designed in order to indicate any narrowing of roads

- Fully aluminium manufacturing of
  - 3 separate sign arrows
  - 1 sign arrow indicating the road narrowing
  - 1 sign indicating the
- Mounted in front of the lighting arrow
- 4 fully functional LED warning lights
- Mounting pads are inclusive

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CRASH ATTENUATOR

Made in Belgium

ASK FOR OUR PRICING !

- Fuly in house R&D and manufacturing CE
- Sales
- Rental
- Repair & maintenance

Elevated signalling mounted on telescopic LED lift mast

- Extendable and mounted of hydraulic lift mast
- Sign 2100 x 2100 mm
- LED matrix 1500 x 1500 mm with texts and logos
  Colour : amber, pixel pitch 20 mm
  Optional multi colour / full colour
- Fully adjustable illumination (manual or automatic)
- Sign posting (text and image) > scroll, flash and alternation
- Easy programming of messaging
- Supply : 24V truck battery + 2 extra batteries, 2 x 12v 230Amp, battery isolator, controller
- LED sign posting conform EN 12966 regulations (LED 3 GEN)
- LED Type = SMD Technology, for increased visibility and lower consumption

▼ Working height 8 meters

Variable messaging Sign Posting mounted on telescopic lift

Stuer-Egghe programs your led screen with
+/- 50 standard working simulations

Easy programming of messages and images via laptop or USB memory stick (Windows)

LED LIFT APPROVAL NR:
BE1017573

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Elevated signalling mounted on telescopic LED lift mast

Easy operation with controller from the driver's seat

Automatic safety device installed : After pulling the handbrake of the truck, the lift can be raised up to the working position (8m).
When the handbrake is released, the lift will return to the driving position (4m).

Easy programming of messages and images via laptop or USB memory stick (Windows)

Uses your own calculation programming

Pre signalling sign posting F79 and exit sign GX1 is supplied with the crash attenuator with elevated signalling

LED LIFT APPROVAL NR:
BE1017573

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Crash attenuator without signalling

Pricing on demand

Crash cushion

- Corrosion free and waterproof
- Equipped with lighting; fully operational when working/driving
- Rear corner protection left and right

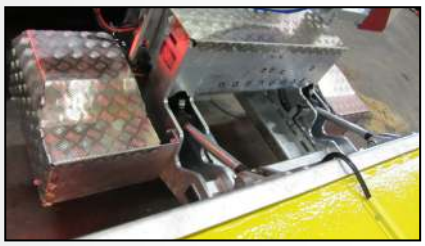
Het kussen is kantelbaar in werk- of rijstand

TESTLEVELS
following TTAI-rapport

Type 70 K	Type 100 K
2-50	3-50
2-51	3-51
2-52	3-52
2-53	3-53

Coupling mechanism:

- Heavy metal constuction
- Hydraulic cylinders for levering the cushion
- The cylinders are operated with an electro-hydraulic pump (12 or 24V), oil reservoir and controller incl. operation



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The cushion is easily changed and replaced in case of damage or collision

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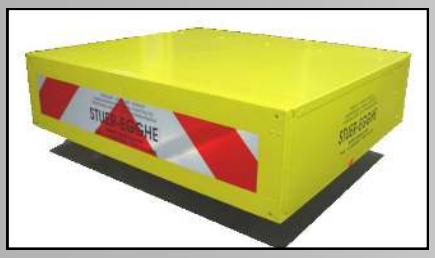

Cushion Type 100K is conform with the model tested by TUV Rheinland TNO TTAI Automotive International in the Netherlands and is fully conform with the American Regulations NCHRP350 described test levels 3-50, 3-51, 3-52 and 3-53 for speeds up to 100 km/h.
The test levels 3-51, 3-52, 3-53 have been conducted with a European Multi Purpose Vehicle. The mass of the carrying vehicle inclusive mounted crash attenuator equalled respectively 9315 kg, 9330 kg and 9345kg

TESTLEVELS
following TTAI-rapport

Type 70 K	Type 100 K
2-50	3-50
2-51	3-51
2-52	3-52
2-53	3-53

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Crash tests

Combination signalling with lighting arrow and crash attenuator

Full-scale
crash tests

TÜV Rheinland TNO
Automotive International

SHORT REPORT TEST: F12020301

Test type:	According to NCHRP Report 350, test designation 3-51
Test object:	STUER-EGGHE truck mounted attenuator (TMA) 100K
Test weight 2000P vehicle:	1995.0 kg
Test date:	13 January 2012
Test Engineer:	R. Fuchs

1. Abstract

On request of STUER-EGGHE BVBA a truck mounted attenuator (TMA) was tested at the full scale test laboratory of TÜV Rheinland TNO Automotive International B.V. in Helmond, the Netherlands.

The US National Cooperative Highway Research Program published Report 350 'Recommended Procedures for the Safety Performance Evaluation of Highway Features'. The purpose of this report was to present uniform guidelines for the crash testing of both permanent and temporary highway safety features and recommended evaluation criteria to assess test results.

The Stuer-Egghe BVBA TMA was tested according to the procedure presented in Report 350-3.51.
A Chrysler Grand Voyager with a mass of 1995.0 kg was used for the 2000P vehicle.
This vehicle meet the criteria mentioned in the Belgium "Dienstorder MOW/AWV 2009/16".
The Chrysler Grand Voyager impacted the STUER-EGGHE BVBA TMA with a velocity of 99.4 km/h.

2. Test facility

TÜV Rheinland TNO
Automotive International B.V.
Steenovenweg 1b
PO Box 818
5700 AV Helmond
The Netherlands

3. Sponsor

STUER-EGGHE BVBA
Industriepark Noord 17a/23
B-9100 Sint-Niklaas
Belgium

4. Vehicle impact velocity

Required speed:	100 ± 4	km/h
Measured speed:	99.4	km/h

4.1 Measurement results

Vehicle weight: 1995.0 kg
Added ballast weight: 150 kg
Vehicle center of gravity in X-direction: 141 cm behind front axle
Vehicle center of gravity in Z-direction: 62.7 cm above ground level
Wheelbase: 303 cm, wheel track : front: 160.0 cm, rear 162.6 cm
Test truck weight including TMA: 9315 kg

X-direction impact velocity: -12 m/s
X-direction ride down acceleration : 18 g

TÜV Rheinland TNO
Automotive International | TAI

5. Impact point and setup

Frontal 0 degree within ± 1.5 degree, no offset, support vehicle placed in second gear and with activated handbrake.

6. Conclusion

The STUER-EGGHE BVBA TMA met the requirements presented in Table 5.1 of Chapter 5 in the NCHRP Report 350, test designation 3-51.

TÜV Rheinland TNO
Automotive International

SHORT REPORT TEST: F12020304

Test type:	According to NCHRP Report 350, test designation 3-52
Test object:	STUER-EGGHE truck mounted attenuator (TMA)
Test weight 2000P vehicle:	1957.0 kg
Test date:	20 January 2012
Test Engineer:	R. Fuchs

1. Abstract

On request of STUER-EGGHE BVBA a truck mounted attenuator (TMA) was tested at the full scale test laboratory of TÜV Rheinland TNO Automotive International B.V. in Helmond, the Netherlands.

The US National Cooperative Highway Research Program published Report 350 'Recommended Procedures for the Safety Performance Evaluation of Highway Features'. The purpose of this report was to present uniform guidelines for the crash testing of both permanent and temporary highway safety features and recommended evaluation criteria to assess test results.

The Stuer-Egghe BVBA TMA was tested according to the procedure presented in Report 350-3.52.
A Chrysler Voyager with a mass of 1957.0 kg was used for the 2000P vehicle.
This vehicle meet the criteria mentioned in the Belgium "Dienstorder MOW/AWV 2009/16"
The Chrysler Voyager impacted the STUER-EGGHE BVBA TMA with a velocity of 99.4 km/h.

2. Test facility

TÜV Rheinland TNO
Automotive International B.V.
Steenovenweg 1b
PO Box 818
5700 AV Helmond
The Netherlands

3. Sponsor

STUER-EGGHE BVBA
Industriepark Noord 17a/23
B-9100 Sint-Niklaas
Belgium

4. Vehicle impact velocity

Required speed:	100 ± 4	km/h
Measured speed:	99.4	km/h

4.1 Measurement results

Vehicle weight: 1957.0 kg
Added ballast weight: 195 kg
Vehicle center of gravity in X-direction: 134.5 cm behind front axle
Vehicle center of gravity in Z-direction: 65.0 cm above ground level
Wheelbase: 287.8 cm, wheel track front: 160.0 cm, rear: 162.6 cm
Test truck weight including TMA: 9330 kg

X-direction impact velocity: -12 m/s
X-direction ride down acceleration 19 g

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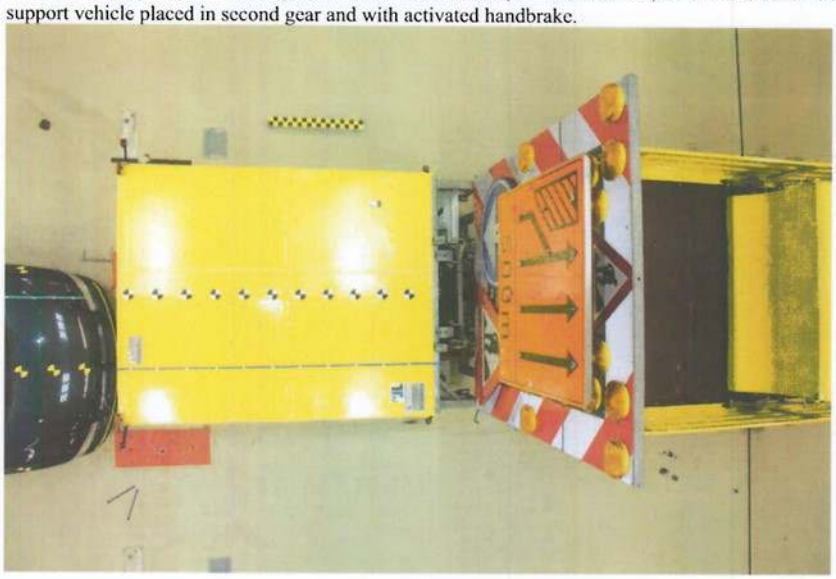
Automotive International | TAI

5. Impact point and setup

Frontal 0 degree within ± 1.5 degree, with an 1/3.w offset (w = width of car) of the TMA and the support vehicle placed in second gear and with activated handbrake.



6. Conclusion

The STUER-EGGHE BVBA TMA met the requirements presented in Table 5.1 of Chapter 5 in the NCHRP Report 350, test designation 3-52.

TÜV Rheinland TNO
Automotive International

SHORT REPORT TEST: F12020303

Test type:	According to NCHRP Report 350, test designation 3-53
Test object:	STUER-EGGHE truck mounted attenuator (TMA)
Test weight 2000P vehicle:	1985.0 kg
Test date:	18 January 2012
Test Engineer:	R. Fuchs

1. Abstract

On request of STUER-EGGHE BVBA a truck mounted attenuator (TMA) was tested at the full scale test laboratory of TÜV Rheinland TNO Automotive International B.V. in Helmond, the Netherlands.

The US National Cooperative Highway Research Program published Report 350 'Recommended Procedures for the Safety Performance Evaluation of Highway Features'. The purpose of this report was to present uniform guidelines for the crash testing of both permanent and temporary highway safety features and recommended evaluation criteria to assess test results.

The Stuer-Egghe BVBA TMA was tested according to the procedure presented in Report 350-3.53.
A Chrysler Voyager with a mass of 1985.0 kg was used for the 2000P vehicle.
This vehicle meet the criteria mentioned in the Belgium "Dienstorder MOW/AWV 2009/16".
The Chrysler Voyager impacted the STUER-EGGHE BVBA TMA with a velocity of 98.3 km/h.

2. Test facility

TÜV Rheinland TNO
Automotive International B.V.
Steenovenweg 1b
PO Box 818
5700 AV Helmond
The Netherlands

3. Sponsor

STUER-EGGHE BVBA
Industriepark Noord 17a/23
B-9100 Sint-Niklaas
Belgium

4. Vehicle impact velocity

Required speed:	100 ± 4	km/h
Measured speed:	98.3	km/h

4.1 Measurement results

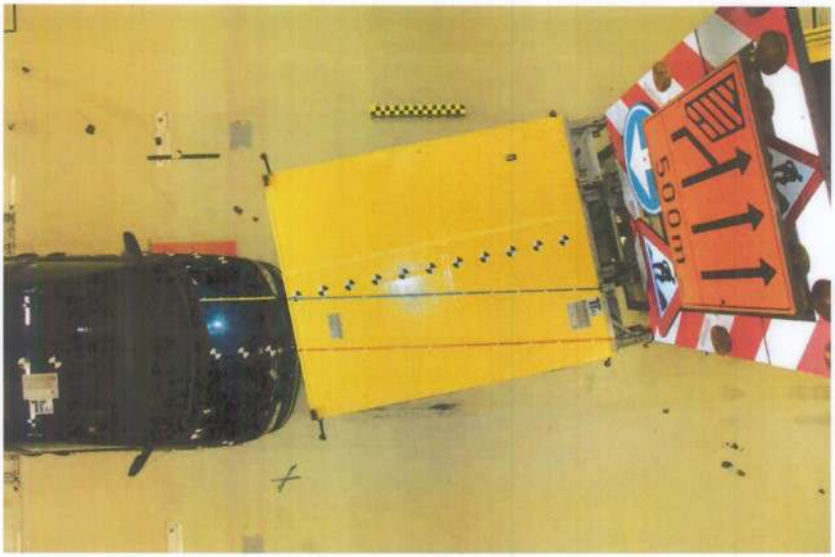
Vehicle weight: 1985.0 kg
Added ballast weight: 185 kg
Vehicle center of gravity in X-direction: 136.9 cm behind front axle
Vehicle center of gravity in Z-direction: 66.3 cm above ground level
Wheelbase: 287.8 cm, wheel track front: 160.0 cm, rear: 162.6 cm
Test truck weight including TMA: 9345 kg

X-direction impact velocity: -11 m/s
X-direction ride down acceleration 14 g

TÜV Rheinland TNO
Automotive International | TAI

5. Impact point and setup

Frontal 10 degree within ± 1.5 degree, with an ¼.w offset (w = width of car) of the TMA and the support vehicle placed in second gear and with activated handbrake.



6. Conclusion

The STUER-EGGHE BVBA TMA met the requirements presented in Table 5.1 of Chapter 5 in the NCHRP Report 350, test designation 3-53.