

ALEXANDER DEFENSE CORPORATION



**Alexander Defense Corporation
254 Chapman Rd, Ste 208 #11656,
Newark, DE 19702**

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ARMORED LEVEL B6 TLC79 SINGLE CABIN WITH TROOP CARRIER

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254 Chapman Rd, Ste 208 #11656, Newark, DE 19702

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Vehicle Specifications

Vehicle	TOYOTA LC79 SINGLE CABIN
Year Model	2022,2023
Engine	V6 – 4000 CC
Fuel Type	PETROL
Color	BEIGE



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➤ Armoring specifications for TLC79 Single Cabin Level B6

The armored vehicles manufactured are fully compliant with the European Committee for Standardization (CEN) to BS EN 1063 level BR6/BS EN 1522 level FB6 which equates to the following threat:

Caliber 7.62 x 51 mm NATO ball, 9.5-gram at 10 meters, 3 shots into 120mm circle, velocity 830 MPs+/-10MPs, and all lesser threats (including AK47 assault rifle soft core ammunition), defined as ballistic B6 at both 45 & 90 degrees and various oblique angles including:

- 5.56 X 45 mm (SS 109).
- 5.49 X 39 mm Kalashnikov.
- 7.62 x 39 mm Kalashnikov.
- 7.62 X 51 mm (NATO) ball.
- a minimum of 2 X DM51 hand grenades detonated simultaneously directly on top and underneath the vehicle.

The armoring process on the standard base vehicles is integrated after the base vehicle production without changing the exterior appearance. All gaps between the main body of the vehicle and the doors are overlapped and fitted with features to prevent foreign projectiles or splinters from entering the passenger compartment.

➤ Materials used for armoring:

All materials used in the armoring process such as steel and glass have undergone a thorough destructive testing process from recognized government testing agencies and have demonstrated the ability, and be fully certified, to successfully defeat all threats defined as ballistic level B6 at both 45- and 90-degree angles including:

- 5.56 X 45 mm (SS 109).
- 5.49 X 39 mm Kalashnikov.
- 7.62 x 39 mm Kalashnikov.
- 7.62 X 51 mm (NATO) ball.
- a minimum of 2 X DM51 hand grenades detonated simultaneously directly on top and underneath the vehicle.

All ballistic glass installed on the armored vehicles is rated as providing B6 ballistic protection levels at an ambient temperature of 50°C.



1. Opaque areas:

All opaque areas including the roof are protected with ballistic steel 6.5 mm plating against softcore projectiles fired with the following and all lesser weapons at 90 degrees and 45 degrees (roof) impact angles:

- 5.56 X 45 mm (SS 109).
- 5.49 X 39 mm Kalashnikov.
- 7.62 x 39 mm Kalashnikov.
- 7.62 X 51 mm (NATO) ball.
- A minimum of 2 X DM51 hand grenades detonated simultaneously directly on top and underneath the vehicle.

2. Transparent areas:

All transparent areas are protected against projectiles fired with the following and all lesser weapons at a 90° impact angle:

- Caliber 7.62 X 39 mm, FJ/PB/SC, AK 47 (Kalashnikov) OBR- 43 PS
- Caliber 5.45 X 39.5 mm AP, FJ/PB/SCP, AKS 74 (Kalashnikov) OBR-74
- Caliber 5.56 X 45 mm, FJ/PB/SCP, US Rifle M16 A2, SS-109/M-8555.
- Caliber 7.62 X 51 mm, FJ/PB/SC, “FAL”/” LAR” NATO Rifle.

Ballistic glass is installed in a ballistic steel frame to ensure that angled shots cannot penetrate through the sides of the glass.

3. Floor:

The floor is fitted out with an anti-blast steel sheet with a minimum thickness of 3.8 mm designed in such a way that it will defeat at least two DM51 hand-grenades detonated simultaneously per square meter and all lesser explosives in full compliance with the European Committee for Standardization (CEN) standards to B6 level, fitted using continuous weld.

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4. Engine compartment & Radiator Protection:

All batteries are protected within steel armored boxes within the engine compartment against projectiles and splinters; these armored boxes can be easily removed for maintenance or transportation.

The vehicle management system, including the fuse boxes, which control the essential electrical vehicle functions, is protected with armored steel to level B6 against splinters and fragmentation. Full-length armored steel to the level of B6 ballistic certification is mounted on both sides of the engine compartment behind the vehicle wings that protect the engine compartment.



The dashboard, bulkhead, firewall, and openings for normal vehicle functions such as steering column, foot pedals, and other controls are protected by ballistic steel.

5. Protected fuel tanks:

All fuel tanks are fully armored using blast steel to combat ballistic and fragmentation attacks.

6. Door apertures:

Every door aperture has a ballistic steel overlap and splash return around the door aperture, through 180°/360° of the aperture, to prevent any ballistic leakage and also to keep the armored door in place in the event of a large side blast.





7. Doors and door hinges:

All standard door hinges on all doors are replaced with engineered – for purpose heavy-duty hinges capable of sustained functioning of the heavier armored doors.

All door pillars are armored and specially reinforced to prevent distortion caused by the additional weight of the doors.

All door hinges directly connect the armoring steel in the doors to the armoring steel in the pillars and no weight is carried by the standard sheet steel of the base vehicle.

Door check straps/ retainers are fitted to all doors to prevent reaching full articulation.

8. Suspension system:

The standard OEM Suspension system is replaced with a high-performance suspension system providing constant loading.

Upgraded steering dampers, front and rear shock absorbers from high quality Australian or German manufacturers of sufficient design to prevent fluid from boiling, front and rear springs as well as the front and rear anti-roll bars are installed.

Suspension turrets and anchoring points are strengthened and reinforced to enable the additional load.






9. Tires:

Tires and Rims are replaced, all wheels including the spare tire are fitted with run-flat systems rated at 50 km at a speed of 80kmph run-flat capability.

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INSPECTION CERTIFICATE FOR ARMORED STEEL

 Mitglied der VPAM BESCHUSSAMT MELLRICHSSTADT	Zertifikat Certificate 22Z311C01	
	Inhaber des Dokumentes: <i>Holder of the document</i>	SSAB Europe Oy Rautaruukintie 155 92100 Raahe Finland
	Prüfung der durchschusshemmenden Eigenschaften von plattenartigem Material nach: <i>Test of the bullet resistance of plate material according to:</i> VPAM PM Fassung 3, Stand: 15.03.2021	
	Hersteller: <i>Manufacturer</i>	SSAB Europe Oy
	Auftraggeber: <i>Applicant</i>	SSAB Europe Oy
	Prüfgegenstand: <i>Sample</i>	Stahlblech (6,7mm x 495mm x 495mm) <i>steel plate</i>
	Probenbezeichnung: <i>Designation</i>	Ramor 500 heat-No. 20282-021
	Prüfdatum: <i>Test date</i>	19. September 2022
	Detailergebnisse siehe Prüfbericht Nr.: <i>Detailed results see test report No.</i>	22M311C01
	Die vorgelegte Probe erfüllte die Anforderungen nach: <i>The submitted sample met the requirements according to:</i> VPAM PM Fassung 3 PM 7, 90°, 20°C	
Die Prüfergebnisse beziehen sich ausschließlich auf die im zugehörigen Prüfbericht beschriebenen Prüfgegenstände. Dieses Dokument ist nur mit Unterschrift und Dienstsiegel gültig. Original nur mit Prägung im Staatswappen. <i>The test results relate only to the tested samples described in the accompanying test report. This document is only valid with signature and official seal. Only the original document has an embossed coat of arms.</i>		
Beschussamt Mellrichstadt, 19. September 2022		
 Böttsch		
		
Beschussamt Mellrichstadt (Mellrichstadt Ballistics Agency) - Lohstr. 5 - 97638 Mellrichstadt Telefon +49-9776-7050-0 - Telefax +49-9776-5457 - ba-met.poststelle@img.bayern.de - Germany		

HarschAZZ_Rev_AA0222

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INSPECTION CERTIFICATE FOR ARMORED GLASS



Baden-Württemberg
Regierungspräsidium Tübingen

Beschussamt Ulm 

Eich- und Beschusswesen Baden-Württemberg

Staatliche Prüf- und Zertifizierungsstelle für Waffen- und Sicherheitstechnik
Legal verification and certification office for weapons and security engineering

Zertifikat - Certificate

S 21 0068 01 / Z

Durchschusshemmende Verbundsicherheitsverglasung
Bullet resistant laminated glazing

Antragsteller
Applicant

GLASS SOLUTIONS LLC
UAE - RAS AL KHAIMAH

Hersteller
Manufacturer

GLASS SOLUTIONS LLC
UAE - RAS AL KHAIMAH

Ort und Datum der Prüfung
Location and test date (d.m.y.)

89081 Ulm, 12.10.2021

Prüfvorgabe
Test requirement

DIN EN 1063 : 2000-01

Gegenstand der Zertifizierung
Item under certification

VSG-Verglasung (+21°C)
Laminated glazing (+21°C)
500 x 500 x 41,60 mm [Istmaße / Actual sizes]
(22,10 kg)

Typenbezeichnung
Product reference

EN 1063 BR6 NS

Zugeordnete Widerstandsklasse
Resistance class achieved

DIN EN 1063 BR6 NS

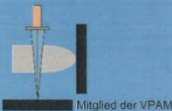
Details siehe Prüfbericht-Nr.
Details see test report number

S 21 0068 01 / B

Hiermit bestätigen wir, dass sämtliche zur Zertifizierung eingesetzten Prüfmittel, Messmittel und Hilfsmittel entsprechend dem akkreditiertem System qualifiziert bzw. messtechnisch rückgeführt sind.
We hereby confirm that all test devices, measuring tools and aids used for the certification are qualified or metrological traceable to the accredited system.

Zertifikate ohne Unterschrift und Dienstsiegel haben keine Gültigkeit. Dieses Zertifikat darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung des Beschussamtes Ulm.
Der Prüfbericht ist Grundlage und Bestandteil des Zertifikats.

Only the original certificate stamped and signed by the Proof House is valid. This certificate may only be passed on in its entirety and without modification. The use of parts of this certificate is allowed only with the express consent of the Beschussamt Ulm.
The test report is basis and part of the certificate.



Beschussamt Ulm
Albstraße 74
89081 Ulm

Tel.: 0731-9 68 51-0
Fax: 0731-9 68 51-99
beschussamt@rpt.bwl.de
www.beschussamt.eu

Akkreditierte Prüf- und
Zertifizierungsstelle



Dokument: SI 10-010 Genehmigung: L Stand: 30.04.2020



Ulm, den 12.10.2021



H. HAUSSLER
Leiter der Zertifizierung
Head of certification

Alexander Defense Corporation

Prüfbericht-Nr.:
Test report number:

S 21 0068 01 / B

Beschussamt Ulm 

Allgemeine Angaben

General details

Art der Probennahme: Vom Antragsteller ausgewählt und angeliefert am 05.10.2021
Taking of samples: Chosen and delivered on 05.10.2021 (d.m.y.) by the Applicant

Prüfer: M. Güntner
Tester: S. Junginger

Teilnehmer: ---
Participants:

Prüfvorgaben

Specifications of the standard

Entsprechend der Widerstandsklasse **BR6 NS** nach **DIN EN 1063**
According to the resistance class **BR6 NS** of **DIN EN 1063**

Waffe: Weapon:	Art Type	Prüflauf Test barrel
	Kaliber Calibre	7,62 x 51 mm
	Dralllänge Twist length	305 mm
Munition: Ammunition:	Geschoss Bullet	Vollmantel, Spitz, Weichkern; Typ: DM41 Full jacket, pointed, soft core; Type: DM41
	Geschossgewicht Bullet weight	9,50 ± 0,10 Gramm / gram
	Losnummer Lot number	BaU 7.62 DM41MEN 1/3/3 L1

**Geforderte Geschoss-
geschwindigkeit:** 830 ± 10 m/s
Required bullet velocity:

Schussentfernung: 10 ± 0,50 m
Test distance:



Versuchsaufbau: Prüfmuster 90° (0° Nato) zur Schussrichtung befestigt
Test setup: Test sample fixed 90° (0° Nato) to the shooting direction

Trefferbild: Dreieck, Seitenlänge 120 mm ± 10 mm (je Probe)
Hit location: Triangle 120 mm ± 10 mm (each sample)



Prüfbericht-Nr.:
Test report number:

S 21 0068 01 / B

Beschussamt Ulm

Details zum Gegenstand der Prüfung

Details to the item under test

Art:
Sample description: VSG-Verglasung
Laminated glazing

Abmessungen:
Size / thickness: 500 x 500 x 41,60 mm [Istmaße / Actual sizes]

Anzahl:
Number of samples: 3

Aufbau:
(Beginnend mit Angriffsseite)
Composition:
(Starting from the attack face)
8,00mm GI 0,76mm PVB 8,00mm GI 0,76mm PVB 8,00mm GI 1,26mm PU 3,00mm LX
1,26mm PU 8,00mm GI 1,26mm PU 3,00mm LX (Nennmaße / Nominal sizes)

GI = Glas / Glass
PVB = PVB-Folie / PVB-foil
PU = Polyurethan-Folie / Polyurethane foil
LX = Lexan-Folie / Lexan-foil

Sonstige Angaben:
Further information: Prüfmustereinlagerung: 12 Stunden bei +21° C
Umgebungstemperatur während der Prüfung: +21° C
Test sample stored prior to test: 12 hours at +21° C
Ambient temperature during the test: +21° C

Typenbezeichnung:
Product reference: EN 1063 BR6 NS



Prüfbericht-Nr.:
Test report number:

S 21 0068 01 / B

Beschussamt Ulm *etc*

Darstellung der Prüfergebnisse

Presentation of the test results

Probe Nr. Sample number	Schuss- folge Shot number	V _{2,5} ¹⁾ [m/s]	E _{2,5} ²⁾ [Joule]	Auswertung ³⁾ Evaluation	Trefferabstände Hit distances
1 09215683	1.	838	3336	KD, NS	1 – 2 = 120 mm
	2.	832	3288	KD, NS	1 – 3 = 120 mm
	3.	838	3336	KD, NS	2 – 3 = 120 mm
2 09215722	1.	835	3312	KD, NS	1 – 2 = 121 mm
	2.	836	3320	KD, NS	1 – 3 = 120 mm
	3.	838	3336	KD, NS	2 – 3 = 118 mm
3 09215643	1.	833	3296	KD, NS	1 – 2 = 120 mm
	2.	837	3328	KD, NS	1 – 3 = 120 mm
	3.	838	3336	KD, NS	2 – 3 = 119 mm

1) V_{2,5} = Geschwindigkeit 2,5 m vor dem Prüfmuster
Bullet velocity 2,5 m in front of the sample

2) E_{2,5} = Geschossenergie 2,5 m vor dem Prüfmuster
Bullet energy 2,5 m in front of the sample

3) KD = Kein Durchschuss / No penetration
D = Durchschuss / Penetration
S = Splitterabgang auf der Rückseite des Prüfmusters / Splinters on the rear side of the sample
NS = Kein Splitterabgang auf der Rückseite des Prüfmusters / No splinters on the rear side of the sample

Ergebnis der Prüfung (Zusammenfassung)

Result of the test (summary)

Die Verglasung **erfüllt** die Prüfanforderungen der Widerstandsklasse **BR6 NS**

The glazing meets the requirements of the resistance class **BR6 NS**

Zertifikat erstellt: Ja / Yes S 21 0068 01 / Z

Certificate issued:

Nein / No

Der Prüfbericht ist Grundlage für das erstellte Zertifikat.
The test report is the basis for the issued certificate.

Prüfbericht-Nr.: S 21 0068 01 / B
Test report number:

Beschussamt Ulm e. V.

Fotodokumentation

Photo documentation

Prüfmuster 1 / Test sample 1: 09215683

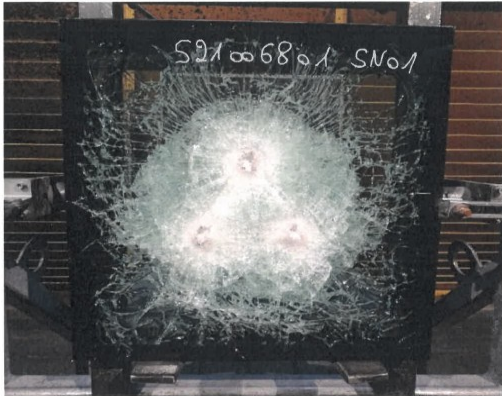


Foto / Photo: Beschussamt Ulm
Nr. / No.: S 21 0068 01; B01

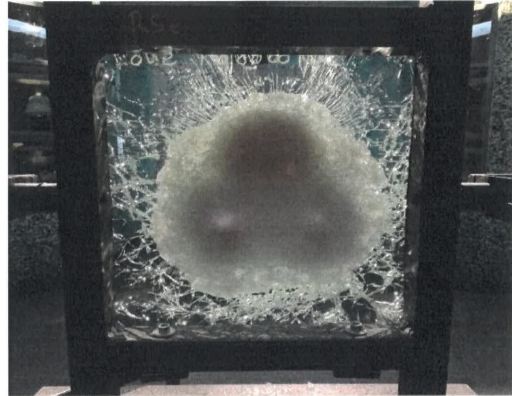


Foto / Photo: Beschussamt Ulm
Nr. / No.: S 21 0068 01; B02

Prüfmuster 2 / Test sample 2: 09215722



Foto / Photo: Beschussamt Ulm
Nr. / No.: S 21 0068 01; B03

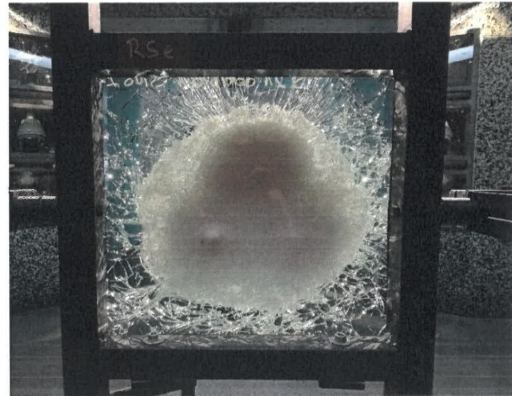


Foto / Photo: Beschussamt Ulm
Nr. / No.: S 21 0068 01; B04



TECHNICAL CERTIFICATE FOR SUSPENSION



To Suit
TOYOTA LANDCRUISER
70 SERIES

TECHNICAL SPECIFICATIONS

Vehicle To Suit: TOYOTA LANDCRUISER 70 SERIES - SUSPENSION (B4, B6, B7)

Ironman 4x4 suspension has been developed specifically for Toyota Landcruiser 70 Series vehicles with an armoured loading up to 6 tonnes GVW.

Load Rating: UP TO 6.0 TONNE GROSS VEHICLE WEIGHT
Weight Distribution - Front 2.5t / Rear 3.5t

SUSPENSION SYSTEM COMPONENTS

Part Type	Part Number	Quantity	Description
Shock Absorbers - Front	24091FEP	2	Medium Armoured Load - Front 40mm Piston, 60mm body - Twin tube
	24091FEH	2	Heavy Armoured Load - Front 40mm Piston, 60mm body - Twin tube
	45091FEP	2	Medium Armoured Load - Front 45mm Piston, 72mm body - Twin tube
	45091FEH	2	Heavy Armoured Load - Front 45mm Piston, 72mm body - Twin tube
Shock Absorbers - Rear	24094LFEH	2	Medium Armoured Load - Rear 40mm Piston, 60mm body - Twin tube
	24094LFEH	2	Heavy Armoured Load - Rear 40mm Piston, 60mm body - Twin tube
	45094LFEH	2	Medium Armoured Load - Rear 45mm Piston, 72mm body - Twin tube
	45094LFEH	2	Heavy Armoured Load - Rear 45mm Piston, 72mm body - Twin tube
Coil Springs - Front	TOY046C-B	1	Light Armoured Load - Front (17.5mm material)
	TOY046D-B	1	Medium Armoured Load - Front (18mm material)
	TOY046EA-B	1	Heavy Armoured Load - Front (19mm material)
Leaf Springs - Rear	TOY046EA1-B	1	Extra Heavy Armoured Load - Front (20mm material)
	TOY047C	2	Medium Armoured Load - Rear (9+2 Leaf)
	TOY047D	2	Heavy Armoured Load - Rear (9+2 Leaf)
	TOY047E	2	Extra Heavy Armoured Load - Rear (9+2 Leaf)
TOY047EA	2	Super Heavy Armoured Load - Rear (8+2 Leaf)	
Additional Kit Components			
Polyurethane Bush Kit	1085UK	1 Set	Polyurethane Greasable
U-Bolt Kit	416UBK	2 Sets	230mm Length
Greasable Shackles Kit	1141	2	Greasable - Assists with Bush Lubrication
Greasable Pin Kit	1142	2	Greasable - Assists with Bush Lubrication

OPTIONAL SUSPENSION PARTS

Part Type	Part Number	Quantity	Description
Front			
Steering Damper	3525	1	748mm Length - Foam Cell
Sway Bar	ISB789FW	1	33mm Heavy Duty - Diesel
Sway Bar	ISB789FWP	1	33mm Heavy Duty - Petrol
Rubber Spring	RS003K	1 Set	Rubber Bump Stop System
Rubber Bush Kit	1144RK	1 Set	2" Caster Offset
Drag Link	ADL070	1	Adjustable
Track Rod	ATRO70	1	Adjustable
Panhard Rod	PANHARD013L	1	Adjustable - LH Drive
Panhard Rod	PANHARD013	1	Adjustable - RH Drive
Rear			
Sway Bar	ISB789RW	1	33mm Heavy Duty
Rubber Spring	RS004K	1 Set	Rubber Bump Stop System



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INSPECTION CERTIFICATE FOR RUNFLATS

IFM

Institut für Fahrzeugtechnik und Mobilität



Prüfbericht
Test report

Nr.: 20303Mi0016_kurz

**Kurzzusammenfassung der Begutachtung eines 16“
Reifennotlaufsystems**

Short summary of the assessment of a 16” tire runflat system

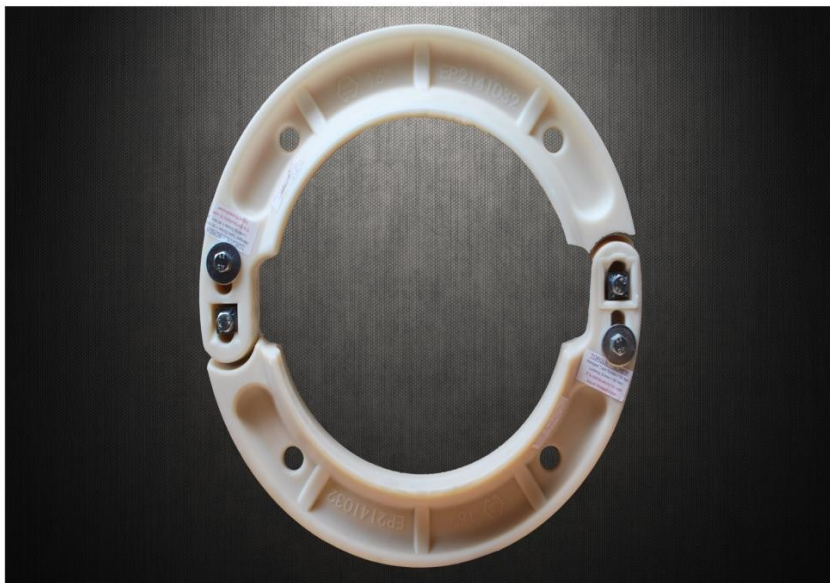
des Herstellers / *manufacturer* : **Europlast – Nycast GmbH**

**Industriestr. 47
D-42551 Velbert - Röbbeck**

Untersuchungsgegenstand:
test object:

Notlaufsystem PKW/SUV, Felgen 16-20“ , zweiteilig
gefertigt aus elastomer-modifiziertem Gußpolyamid,

Runflat system for passenger cars / SUV, rim 16-20“, two-piece
Manufactured of elastomer modified cast polyamid.



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PRÜFBERICHT Nr.: 20303Mi0016_kurz

Test report No.:

Hersteller : EUROPLAST – Nycast GmbH
Manufacturer



Typ : Notlaufsystem PKW/SUV, Felgen 16-20"
Type : Runflat system for passenger cars / SUV, rim

Blatt 2 von 2
page of

Prüfreifen : LT 235/85 R16 121 Q
Tested tire

Datum / date
15.08.2016

Prüfungsdurchführung: test procedure:

Das Notlaufsystem wurde nach Herstellervorgaben wie folgt geprüft:

Montiert auf einer Felge 8J x 16" mit einem Reifen der Größe LT 235/85 R16 121 Q auf der Hinterachse links an einem Mercedes Sprinter (Radlast: 1400 kg) wurde das System mit luftleeren Reifen 50km mit einer Geschwindigkeit von 50 km/h auf ebener asphaltierter Strecke (ATP Papenburg) gefahren.

The run-flat system was tested in accordance with manufacturer's requirements as follows:

Mounted on a rim 8J x 16" with tires of size LT 235/85 R16 121 Q on the rear axle left side on a Mercedes Sprinter (wheel load: 1400 kg), the system was only driven with flat tires over 50 km with a speed of 50 km/h on a leveled and tarmaced route (ATP Papenburg).

Kurzzusammenfassung Abstract

Die oben beschriebenen Anforderungen wurden mit dem Notlaufsystem erfüllt ohne dass es zu einem Ausfall des Systems kam. Die Testfahrt wurde nach 57km abgebrochen. Die Fahrzeugreaktionen und das Handling des Fahrzeugs mit drucklosen Reifen auf einer Fahrzeugseite ließen sich auch von einem ungeübten Autofahrer beherrschen.

The above-described requirements were fulfilled without leading to a failure of the system. The test drive was aborted after 57 km.

The vehicle reactions and the handling of the vehicle with unpressurised tires on one vehicle side were manageable even by an unpracticed motorist.

Dieser Bericht umfasst 2 Seiten.

Die umfassende Begutachtung entnehmen Sie bitte dem Prüfbericht 20303Mi0016 des TÜV Nord vom 15.08.2016

This report encompasses 2 pages.

The comprehensive assessment please refer to the report of the TÜV Nord 20301Mi0016. from 2016.08.15

Essen, dated 15.08.2016

Auftrags-Nr. / order No.: 811301558 , Verz. Nr.: 03.002.16



Institut für Fahrzeugtechnik und Mobilität
Fachgebiet: Räder – Reifen – Fahrwerk - Tuning



Dipl.-Ing. Minski
amtlich anerkannter Sachverständiger
für den Kraftfahrzeugverkehr

Alexander Defense Corporation