



**ESTL nv**  
Wafelstraat 46 -B 8540 Deerlijk  
**Automotive certification**  
homologation@estl.be

www.estl.be  
BTW 0818.634.666  
+32 (0) 56 77 86 00



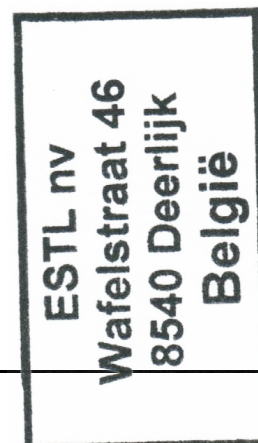
<b>1. Report</b>	No.: <b>HRUP180227TC3</b>	Update:	01
	Ref.: 201808906	Annexes:	See Part 6.

<b>2. Test Subject</b>	Rear Underrun Protection Device		
According to:	ECE R58-02 Supplement 3	EC 661/2009	

<b>3. Information</b>	
Manufacturer:	Almic bvba Bosuilstraat 7 3910 Neerpelt Belgium
Make of the RUPD:	ALMIC bvba
Type:	BU
Variants:	M: Mechanical E: Electrical H: Hydraulic
Version:	400; 550; 850; 1050; all combinations possible
Commercial description:	/
Category(ies) :	N2; N3

<b>4. Test</b>	
Place and date:	ESTL, Wafelstraat 46, Deerlijk, Belgium 17/05/2018
Manufacturer's representative:	Mr. Marc Janssen
Test Engineer:	Ba. Christophe Willems
Test Equipment software version:	SW_MTDB_v7.0
Technical documentation:	TDHRUP180227TC3R1
Location of E-mark:	-

<b>5. Conclusions</b>	
The model represented fulfills the hereunder performed tests, as described in Regulation 58-02.	
Performed by:	Revised by:
Ba. Christophe Willems Test Engineer	Ing. Kristof Baeyens Homologation manager
Date: 17/05/2018	



Report type :	Base report / <del>Extension</del> / <del>Revision</del>
Reason for extension / revision :	-
Scope for approval :	<del>Individual / National series</del> / International series
Test subject & scope:	extendible RUP which is tested as a rear underrun protection device.

### Part 1: Information test specimen

Make of the RUPD:	ALMIC bvba
Type:	BU
Commercial description:	BUM-1050
Category(ies) :	N2; N3
Possible Variants:	See information document
Sample reception date:	27/02/2018
Worst case evaluation:	<p>The system is tested at :</p> <ul style="list-style-type: none"> <li>*largest chassis width(max. hor. Distance between support and hinge).</li> <li>*highest support length.</li> <li>*widest length.</li> <li>*smallest chassis inertia moment</li> </ul> <p>In order to validate the 3 different actuation methods, a load cell is mounted during the physical test, measuring the induced force in the actuation system. The 3 actuation systems are sufficiently strong to resist to the induced force in the actuation system.</p>

### Part 2: General specifications

Par.	Subject	Result
	The application for EU type-approval shall be accompanied by:	
	Information form, with RUPD test report.	COMPLIES

### Part 3: Individual specifications

#### 3.0 General specifications

Par.	Subject	Result
A1 §7.1	The section height of the cross-member must not be less than 100 mm.	COMPLIES
A1 §7.1	The lateral extremities of the cross-member must not bend to the rear or have a sharp outer edge; this condition is fulfilled when the lateral extremities of the cross-member are rounded on the outside and have a radius of curvature of not less than 2.5 mm.	COMPLIES
A1 §7.4	For vehicles fitted with a platform lift at the rear, the underrun device may be interrupted for the purposes of the mechanism. In this case, the following special requirements apply:	NOT APPLICABLE
A1 §7.4.1	The maximum lateral clearance measured between the elements of the underrun device and the elements of the platform lift, which move through the interruption when the lift is operated and which make the interruption necessary, may amount to no more than 2.5 cm.	NOT APPLICABLE
A1 §7.4.2	The individual elements of the underrun protection, including those outboard of the lift mechanism, where provided, must have an effective surface area, in each case, of at least 350 cm <sup>2</sup> .	NOT APPLICABLE
A1 §7.4.2	However, in the case of vehicles having a width of less than 2,000 mm and where it is impossible to achieve the above requirement, the effective surface may be reduced on the condition that the resistance criteria are met. (Par. 7.4.2)	NOT APPLICABLE

### 3.1 Dimensional specifications

Par.	Dimension	Value	
	Wider rear axle width	2550	mm
	Cross-member width	2356	mm
	transverse distance between brackets: min	744	mm
	transverse distance between brackets: max	922	mm
	Difference in transverse distance	178	mm
	Width difference on the left side (≤100mm)	✓ 97	mm
	Width difference on the right side (≤100mm)	✓ 97	mm

## Part 4: Physical test

### 4.0 Test method

	RUPD is tested /calculated on a rigid test bench.	COMPLIES
	The parts used to connect the RUPD to the rigid test bench shall be equivalent to those which are used to secure the RUPD when it is installed on the vehicle.	COMPLIES

### 4.1 Chassis

Minimal moment of inertia of chassis members (one chassis beam) [mm <sup>4</sup> ]	1396
--	------

### 4.2 Height regulation device test

7.2	Force to change position ≤ 400 N	≤ 400	N
-----	----------------------------------	-------	---

### 4.3 Load test dimensions

Par.	Point	Horizontal transverse position	
A5 3.1.2	P1	1064	mm from the middle
A5 3.1.3	P2	385	mm from the middle
A5 3.1.1	P3	0	mm from the middle

### Informative

A5 3.2.1	Replacement force if point in interruption area (Platform lift) * P3: replacement point: within 50mm to the intended points * P1: replacement point: max. 325mm from outer edges of the wheels on the rear axle
	Test point height ≤600mm above the ground. (If tested on a vehicle)

### 4.4 Load test forces

Maximum mass vehicle:	60000 kg
-----------------------	----------

Reaction Po	Specified Load	Max. Applied Load	Deformation
Point P1	F [daN]: 5000	F [daN]: 5005	D[mm]: 49
Point P2	F [daN]: 10000	F [daN]: 10000	D[mm]: 27,4
Point P3	F [daN]: 5000	F [daN]: 5002	D[mm]: 5,8

### 4.5 Result

7.3	Maximum horizontal deformation:	49	mm
	Maximum distance from the rear of the vehicle to rear edge of protective device:	351	mm

### Part 5: Conclusions and remarks

-The device can only be mounted without plastic cover when the sides of the device are covered by the bodywork of the vehicle.

### Part 6: Annexes

No.	Description	# Pages
-	-	-

### Part 7: Used test equipment

Description	Registration number	Calibrated	Applicable
Length meter	LMT_5m_01	x	x
Force controller	MTDB_01 CIL_D8045450_01	x	x
Load cell	LCV_5T_03	x	x
Digital angle meter	T_DHM_01	x	x
Digital protractor	T_DSMM_01	x	x
Radius caliper	CAL_R2,5_01	x	x