

COMMUNICATION



issued by: Road traffic safety directorate

Concerning: ⁽¹⁾

APPROVAL GRANTED
~~APPROVAL EXTENDED~~
~~APPROVAL REFUSED~~
~~APPROVAL WITHDRAWN~~
~~PRODUCTION DEFINITELY DISCONTINUED~~

of a type of advance warning triangle pursuant to Regulation No. 27.

Approval No:

E32*27R04/01*0004*00

Extension No:

00

1. Trade name or mark of the advance warning triangle:



2. Manufacturer's name:

Ningbo Fuding Industrial And Trading Co., Ltd.

3. Address:

**No.6, Chuangfu Road, Xiaogang,
Beilun District, Ningbo City,
Zhejiang Province,
P.R. China**

4. If applicable, name of manufacturer's representative:

Not applicable

5. Address:

Not applicable

6. Brief description of the advance warning triangle:

**type designation - RT611;
retro-reflecting trim;
fixed fluorescent material;
support of triangle;
protective cover;
weight 2310g**


7. Submitted for approval on: **10.10.2018.**
8. Technical service conducting approval tests: **TŪV Rheinland-KTI Ltd.**
9. Date of report issued by that Service: **02.07.2018.**
10. Date of report issued by that Service: **87-R27-1015/18-00**
11. Approval **granted**/~~extended/ refused/ withdrawn~~ ⁽¹⁾
12. Remarks: **Not applicable**
13. Place: **S.Eizenšteina iela 6, Rīga,
LV-1079, Latvija**
14. Date: **16.10.2018.**
15. Signature:  **Jānis Liepiņš**
16. The following documents, bearing the approval number shown above, are annexed to this communication:
- Information package **RT611-00**
- Test report: **87-R27-1015/18-00, 02.07.2018.**



⁽¹⁾ Strike out what does not apply.

Application date : March 23, 2018

1. Specification data

Type	RT611	
Function	Advance-warning triangle	
Emitted colour	Red	
Applicable Regulation	R27.04 Advance warning triangle of type 1	
Location of marking	Trade mark	
		Marked on advance-warning triangle and its protective cover
	Approval mark	Marked on advance-warning triangle and its protective cover

2. Construction and material

Construction	Material	Remarks
Lens	PMMA POLYESTER	Red
Housing	ABS POLYESTER	-
Fluorescent	PVC POLYESTER	Red
Protective cover	PP POLYESTER	INSTRUCTIONS OF USE INSCRIBED ON THE COVER

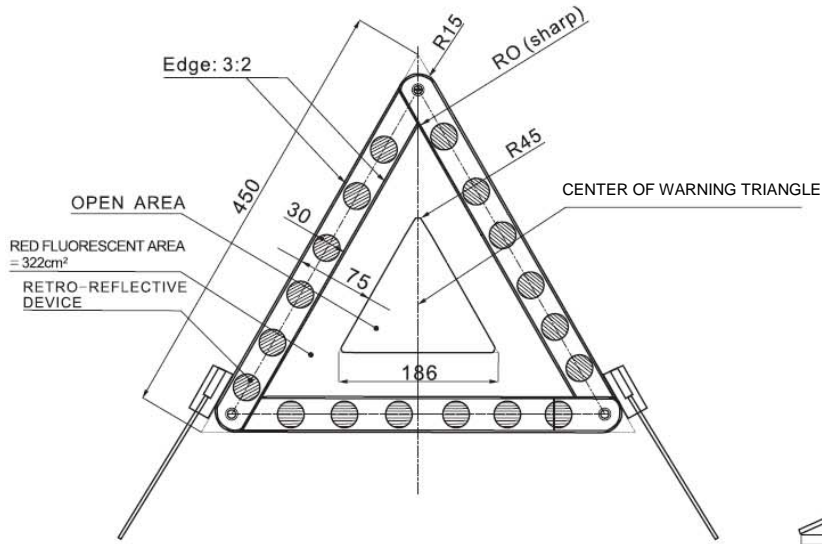
3. Name and address of manufacturer : NINGBO FUDING INDUSTRIAL AND TRADING CO., LTD.
No.6, Chuangfu Road, Xiaogang, Beilun District,
Ningbo City, Zhejiang Province, China

4. Name and address of representative of manufacturer : Not applicable

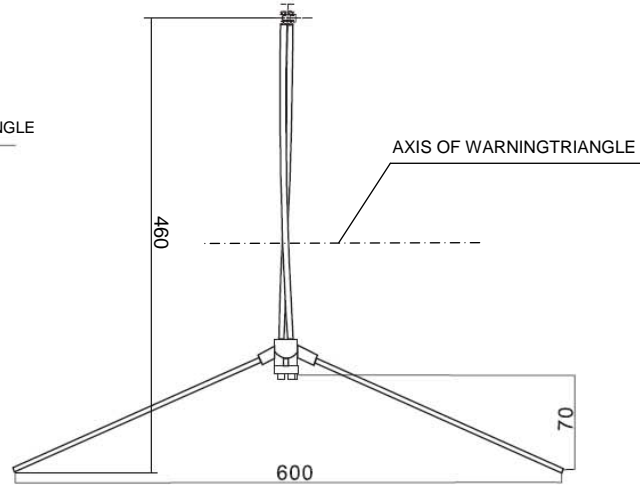
This information document consists of 3 pages.



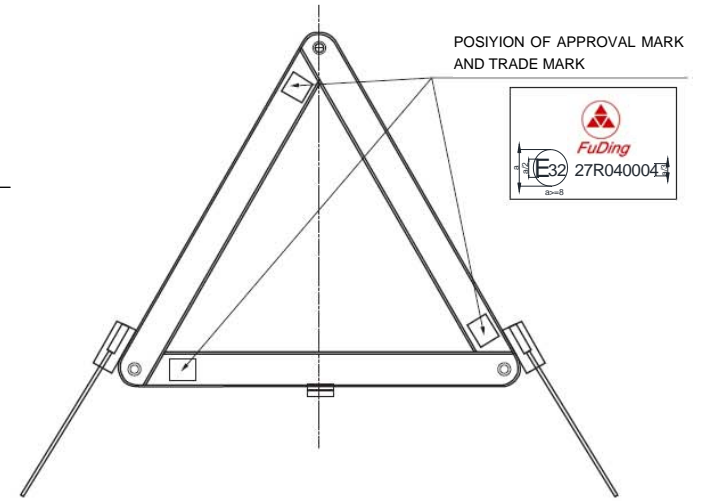
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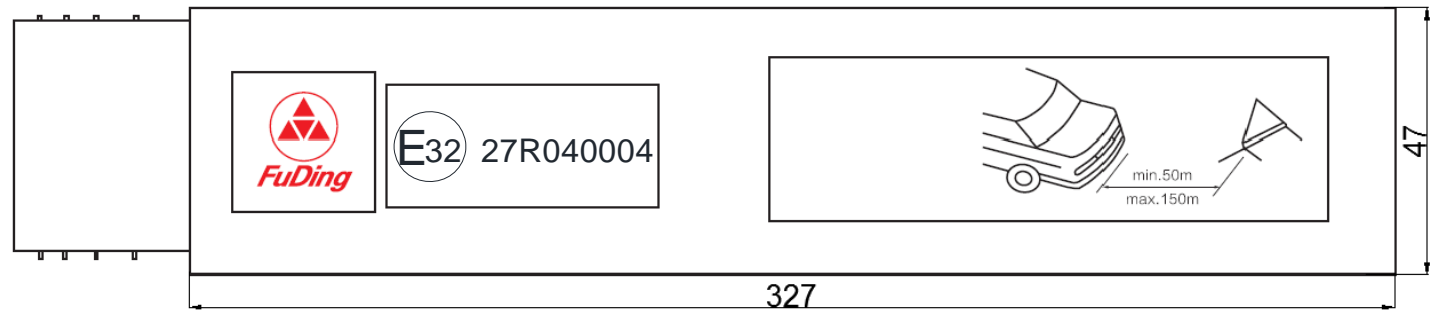
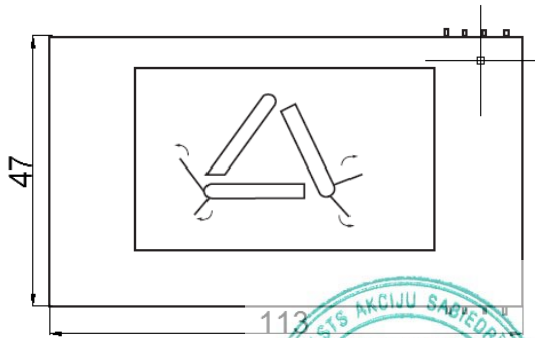
Front View



Side View



Rear View



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Photo of Advance-warning triangle



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Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 Type : RT611

TEST REPORT

according to UN-Regulation

UNIFORM PROVISIONS CONCERNING THE APPROVAL OF ADVANCE-WARNING TRIANGLES

UN Regulation No. 27

including all amendments until

series of Amendments 04, Supplement 1

Approval status	
UN Approval	: ---

Structure of report :

0. General information
1. Tested ~~vehicle(s)~~ object(s) and general test information
2. Test minutes
3. Remarks concerning tested object(s)
4. Appendices
5. Statement of conformity

The Test Report shall be reproduced and published in full by the client only. It shall however be reproduced partially with the written permission of the Testing Laboratory only.



Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 Type : RT611

0. General information

- 0.1. Make (trade name of the manufacturer) : 
 0.2. Type : RT611
 0.3. Name and address of the manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 No.6, Chuangfu Road, Xiaogang, Beilun District,
 Ningbo City, Zhejiang Province, China
 0.4. Name and address of manufacturer's authorized representative : not applicable
 0.5. No. of the information folder : RT611-00
 -Date of issue : March 23, 2018
 -Date of last change : Not applicable

1. Tested ~~vehicle(s)~~/ object(s) and general test information

- 1.1 Description
 1.1.1 ~~Vehicle~~/ object
 Commercial description : ---
 Type(s) /variant(s)/version(s) : RT611
 Remarks : Advance warning triangle of type 1
 1.1.2 Condition of ~~vehicle(s)~~ / Object(s) : new, ~~used, pretested~~
 1.2 Worst case selection : The determination of the worst case was done according to internal procedures of the Technical Service (QMA 1.301.005, section 6.2.2.2.).
 1.2.1 Test date : April 1, 2018 - April 29, 2018
 1.2.2 Test site : Automotive Component Testing Center of Ningbo
 No. 99, Jingu South Road, Yinzhou Investment & Business Incubation, 315104, Ningbo,
 P.R. China
 1.2.3. Remarks : The results of the test refer exclusively to the object(s) mentioned under point 1.1 of this report.



Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 Type : RT611

2. Test minutes

- 2.1. Test facilities : The test facilities are in compliance with the requirements of Annex 5 and 6 of the regulation.
- 2.2. Test results : ~~The type has been examined according to the amendments mentioned in appendix 0.~~
~~An actual test of the type was not required. The results of the previous tests are still valid.~~
- 2.3. Markings : The trade mark is marked clearly legible and indelible on the advance-warning triangle and its protective cover.
 Space for the approval mark and for additional symbols is provided on the advance-warning triangle and its protective cover.
- 2.4. General specifications : The requirements of Para.6 of this regulation have been fulfilled.
 The product is packet and delivered in a plastic box and is accompanied by a copy of the instructions for use which adhibited on the protective cover.
- 2.5. Particular specifications : The requirements concerning
 - shape and dimensions of the triangle and the support
 - colorimetric specifications
 - photometric specifications
 have been fulfilled which mentioned in Annex 5.



Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 Type : RT611

2.6. Information to Annex 5 of the regulation

2.6.1. General requirements : The general requirements have been fulfilled.

2.6.2. Colour tests : When the retro-reflecting device is illuminated by the CIE standard illuminant A, with an angle of divergence of 1/ 3° and an illumination angle $V = H = 0^\circ$, the trichromatic co-ordinates of the red reflected luminous flux have been measured:

sample	co-ordinates	
	x	y
No.1 (biggest CIL)	0.6400	0.3318
No.2 (smallest CIL)	0.6405	0.3315

When the fluorescent material is illuminated by the CIE standard illuminant D65, at an angle of illumination of 45° to the normal, and viewed along the normal (geometry 45/0). have been measured:

sample	co-ordinates	
	x	y
new material	0.6247	0.3385
after weather-resistance test	0.6215	0.3350



Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 Type : RT611

2.6.3. Test of the luminance factor of the fluorescent material : For the determination of the luminance factor, the sample has been illuminated by a light source of the CIE illuminant D65, at an angle of illumination of 45° to the normal, and viewed along the normal (geometry 45/0) has been measured.

sample	Luminance factor (β)	Require
new material	53.56%	$\geq 30\%$
after weather-resistance test	51.36%	$\geq 30\%$

2.6.4. Test of the CIL of retro-reflecting devices : For this measurement it is assumed that the direction of illumination $H = V = 0^\circ$ for the advance-warning triangle in its position of use is parallel to the base plane and vertical to the lower side of the triangle, which in turn is parallel to the said base plane.

The measurement has been performed by the method described in annex 6 to this Regulation.

The following photometric test which was done for all four test samples, the following values have been measured for the complete triangle:

sample no.	CIL in mcd/lux at $\alpha=20'$ and $\beta V=0^\circ$		Require
	$\beta H=+5^\circ$	$\beta H=-5^\circ$	
1	10922	10722	≥ 8000
2	10420	10546	≥ 8000
3	10799	10697	≥ 8000
4	10485	10602	≥ 8000



Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 Type : RT611

The two samples with the smallest and the largest CIL value had been selected to conduct the test for all illumination angles of and observation angles.

Illumination angles β [°]		test sample No.1 [mcd/lux]				test sample No.2 [mcd/lux]			
H	V	$\alpha=20'$	min. limit [mcd/lux]	$\alpha=1^{\circ}30'$	min. limit [mcd/lux]	$\alpha=20'$	min. limit [mcd/lux]	$\alpha=1^{\circ}30'$	min. limit [mcd/lux]
0	0	11333	8000	796.62	600	11179	8000	773.09	600
0	-20	4924.1	4000	395.54	200	4452.1	4000	309.12	200
0	+20	8058.3	4000	590.52	200	8030.7	4000	564.7	200
-30	0	2696.9	1700	119.63	100	2628.3	1700	114.98	100
+30	0	2099.5	1700	144.98	100	2167.4	1700	128.17	100
-40	0	1216.4	600	56.058	50	1128.6	600	54.918	50
+40	0	1008.4	600	63.322	50	787.54	600	58.332	50

The distributions of the CIL values over the complete length of the trims meet the requirement of the regulation.

- 2.6.5. Test of clearance to ground : The advance-warning triangle passed the required tests.
- 2.6.6. Mechanical solidity test : The advance-warning triangle has been set up as required by the manufacturer.

The applied force to the apex of the triangle did not cause any significantly movement from its original position.

Triangle topside did not move more than 5 cm.



Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 Type : RT611

- 2.6.7. Test of heat and low-temperature : After the test, no cracking or noticeable distortion of the device/
 resistance retro-reflecting surface was visible.
 The cover was easily openable and did not adhere to the triangle.
- 2.6.8. Water test : No part of the device exhibit clear signs of deterioration which might impair the effectiveness of the triangle.
- 2.6.9. Test of resistance to fuels : After the test triangle did not adhere to its protective cover, and there was no visually noticeable change on its surface and no present apparent detrimental modifications.
- 2.6.10. Test of stability against wind : The advance-warning triangle did not overturn or shift. The device did not rotate through more than 10° round a horizontal axis or a vertical axis from its initial position.
- 2.6.11. Test of resistance of the retro-reflecting device (penetration of water) : The CIL did not diminish by more than 40 per cent of the values recorded before the test.
- 2.6.12. Test of the weather-resistance of the luminance factor and of the colour of the fluorescent material : The sample did not exhibit any visible damage such as cracks, scaling or peeling of the fluorescent material.
- Remark : --



Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
 Type : RT611

3. Remark concerning tested object(s) : All versions of the type as stated in the information document are covered with the tested version(s) and test object(s) respectively.

4. Appendices

0 List of modifications

Information folder : RT611-00

5. Statement of conformity

The in point 0.5. mentioned information folder and the type described in that comply with the requirements mentioned on page 1.

With regard to the required level of performance to be achieved, the tested items were representative for the type to be approved (see point 1.2).

The mentioned test results refer to the vehicle(s)/object(s) described under point 1.1. of this report.

Engineer Center Shanghai, July 2, 2018
 ND/ EY



Nancy Deng
Expert Technical Service



Manufacturer : Ningbo Fuding Industrial And Trading Co., Ltd.
Type : RT611

List of modifications

Appendix 0

Correction of : ---
Modification of : ---
Addition of : ---
Deletion of : ---

