

DOUBLE COIN HOLDINGS Ltd.

Information folder No.: S140002 Page 1 of 6

RELATING TO ECE TYPE-APPROVAL FOR A TYPE OF TYRE WITH REGARD TO ROLLING SOUND EMISSIONS AND TO ADHESION ON WET SURFACES AND ROLLING RESISTANCE (ECE Regulation No. 117. 02)

1. GENERAL

- 1.1 The performance characteristics to be assessed for the tyre type : rolling sound level / ~~adhesion performance level on wet surfaces~~ / rolling resistance
- 1.2 Manufacturer's name : DOUBLE COIN HOLDINGS LTD.
Double Coin Heavy-Duty Tyre Co.
- 1.3 Name and address of applicant : DOUBLE COIN HOLDINGS LTD.
: Double Coin Heavy-Duty Tyre Co.
: 2613 Jian Chuan Road , 200245
Minhang Shanghai , P. R. China
- 1.4 Address(es) of manufacturing plant(s) : the same as the applicant
Brand name(s), Trade description(s) or Trade mark(s) to be used for particular tyre type-approval requested : Double Coin; Warrior
RR208

2 TYRE

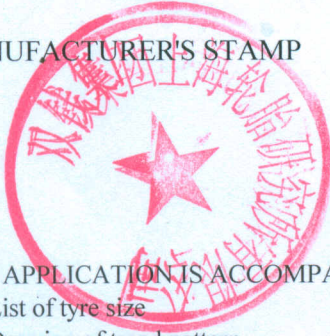
- 2.1 Tyre classification (class C1, C2, C3) : ~~Class C1 / Class C2 / Class C3~~
- 2.2 Section width range for class C1 tyres : see attached list of tyre size
- 2.3 Tyre structure : ~~diagonal / bias-belted / radial~~
- 2.3.1 For Class C1 tyres, state weather :
- 2.3.1.1 Reinforced (or extra load) in case of approval with regard to rolling sound mission level : not applicable
- 2.3.1.2 Speed category symbol "Q" or below (not including "H") or "R" and above (including "H") in case of snow tyres for approval with regard to adhesion on wet surfaces : not applicable
- 2.3.2 For Class C2 and C3 tyres, state whether:
- 2.3.2.1 M+S marked in case of approval with regard to rolling sound emission level at stage 1 : not applicable
- 2.3.2.2 Traction in case of approval with regard to rolling sound emission level at stage 2. : not applicable
- 2.4 Category of use (normal, snow, special) : ~~normal / snow / special~~
- 2.5 A list of tyre designations covered by this application : see attached list of tyre size
- 2.6 Details of major features, with respect to the effects on tyre performance (i.e. rolling emission level or adhesion on wet surfaces, respectively) of the tread pattern(s) to be used on the designated range of tyre sizes. This may be by drawing, photograph or description but must be sufficient to allow the type approval authority or technical service to determine whether any subsequent changes to the major features will adversely affect the tyre performance : see attached drawing of tread pattern



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MANUFACTURER'S STAMP



THIS APPLICATION IS ACCOMPANIED BY:

- List of tyre size
- Drawing of tread pattern
- The test report

Signature:

A handwritten signature in black ink, appearing to be 'Su Hongbin', written over a dotted line.

Name:

The name 'Su Hongbin' written in black ink over a dotted line.



DOUBLE COIN HOLDINGS Ltd.

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List of tyre size

Brand name(s) or Trade mark(s) : Double Coin; Warrior
Tread pattern : RR208

| Tyre size | Approval No. | Limit value for stage2 dB(A) | Wet grip index(G) | Rolling resistance maximum values for stage2 (N/kN) | Indication | Marking |
|-----------------------------------|-------------------|------------------------------|-------------------|---|------------|---------|
| 295/80R22.5 152/149M | E4-0016695 | 73 | --- | 6.5 | --- | --- |
| 315/80R22.5 156/152L | E4-0022193 | | | | | |
| <u>10R22.5</u> <u>144/142L</u> | <u>E4-0023375</u> | | | | | |



DOUBLE COIN HOLDINGS Ltd.

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Test size for tyre noise:

Test Size : **315/80R22.5 156/152L**
Because of : **Largest section width**
Lowest aspect ratio
Largest rim diameter

Test size for rolling resistance:

Test Size : **315/80R22.5 156/152L**
Because of : **---**
Worst Case : **10R22.5 144/142L**
Calculation : **=0.3+0.06*(156-144)=1.02**
Calculated limit value : **5.48**

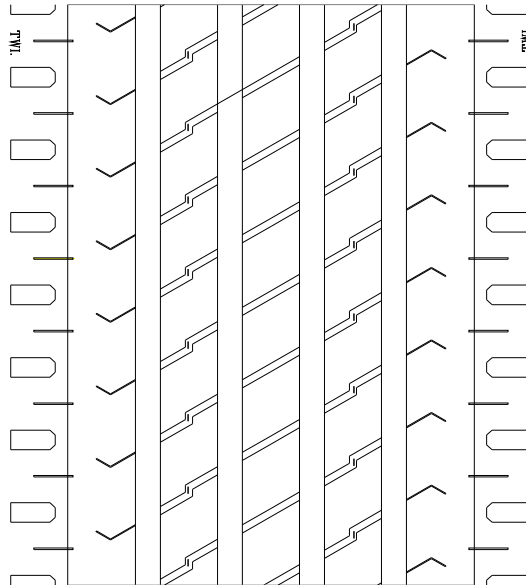


DOUBLE COIN HOLDINGS Ltd.

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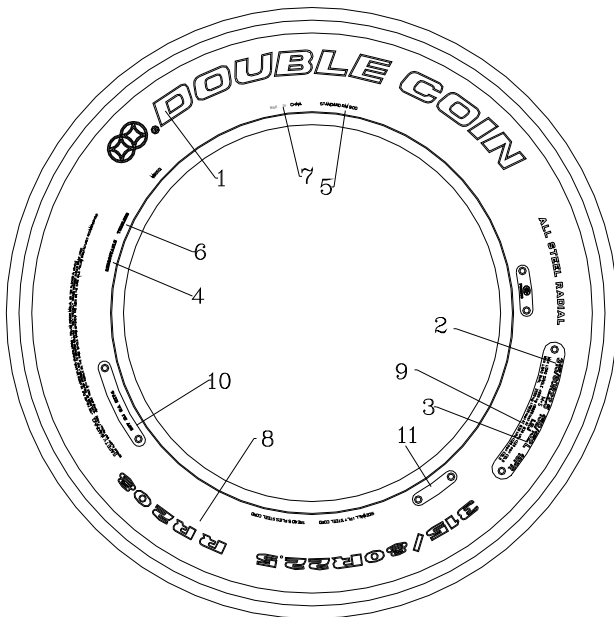
Drawing of the tread pattern (for measured tyre)

| | |
|-----------------------------|---------------------------------|
| Manufacturer name | DOUBLE COIN HOLDINGS LTD |
| Pattern name | Double coin Heavy-Duty Tyre Co. |
| Tyre Size | Double Coin RR208 |
| Market | 315/80R22.5 156/152L |
| Marking | EU/US |
| Pitch number | --- |
| Pitch ratio | 78 |
| Void volume [%] | 1.00 |
| Width: main grooves [mm] | 14 |
| Depth: center groove [mm] | 15.5 |
| Depth: shoulder groove [mm] | 15.5 |
| Pattern | |

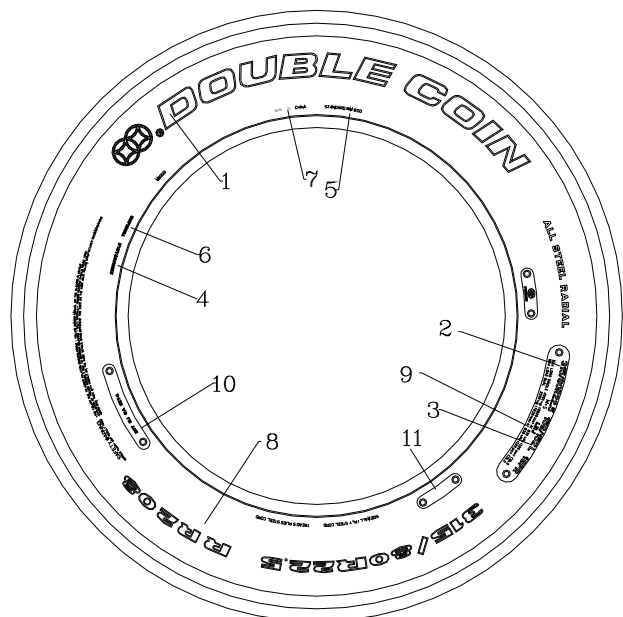


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UPPER MOLD



LOWER MOLD

| NO. | UPPER MOLD | NO. | LOWER MOLD |
|-----|---|-----|---|
| 1 | DOUBLE COIN | 1 | DOUBLE COIN |
| 2 | 315/80R22.5 | 2 | 315/80R22.5 |
| 3 | 156/152L | 3 | 156/152L |
| 4 | REGROOVABLE | 4 | REGROOVABLE |
| 5 | STANDARD RIM 9.00 | 5 | STANDARD RIM 9.00 |
| 6 | TUBELESS | 6 | TUBELESS |
| 7 | MADE IN CHINA | 7 | MADE IN CHINA |
| 8 | RR208 | 8 | RR208 |
| 9 | MAX. LOAD SINGLE 8820LBS AT120PSI MAX. LOAD DUAL 7830LBS AT 120PSI | 9 | MAX. LOAD SINGLE 8820LBS AT120PSI MAX. LOAD DUAL 7830LBS AT 120PSI |
| | | 10 | DOT **** (WEEK NUMBER) |
| | | 11 | E4***** |



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
 Manufacturer : **DOUBLE COIN HOLDINGS LTD.
 Double Coin Heavy-Duty Tyre Co.**

Test Report

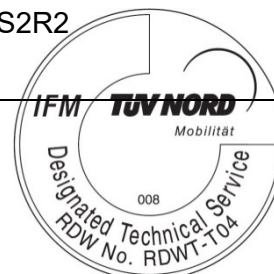
Agreement concerning the adoption of uniform technical prescriptions for the wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions

Uniform Provisions Concerning The Approval Of Types With Regard To Rolling Sound Emissions And To Adhesion On Wet Surfaces And Rolling Resistance And Snow Performance

ECE-R 117
 as last amended

Revision 4
 Supplement 8 to the 02 series of amendments

| | |
|-----------------|---------------------|
| Approval status | |
| ECE | Number of approval |
| | E4-117R-026341-S2R2 |



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **DOUBLE COIN HOLDINGS LTD.**
Double Coin Heavy-Duty Tyre Co.

0. Tire noise, wet grip test and rolling resistance test description

0.1. Test facilities : The test facilities are in compliance with the requirements of the regulation

0.2. Noise Measurement

0.2.1.measurement : The test course satisfies the requirements of ISO 10844:1994 and the test surface is dry and clean for all measurement.

Measurement equipment corresponds to class 1 of IEC 60651.

The microphones are arranged at a distance of $7.5m \pm 0.05m$ to the 2entreline at a height of $1.20m \pm 0.02m$ above the measurement surface. A suitable windscreen may be fitted to the microspnone provided that account is taken of its effect on the sensitivity and directional characteristics of the microphone.

The microphones were calibrated prior to commencement.

Wind speed at the microphone height $\leq 5m/s$.

Ambient noise is at least 10 dB (A) less than the measured tyre-road sound emission.

Prior to actual measurement, the tires were run in for about 100 Km on public roads, to remove mold-release agents, mold discharges etc. from the tires.

The tyres fitted to the test rotate in the same direction as when they were run-in. Prior to testing tyres are warmed up by running under test conditions.

0.2.2.Test results : The vehicle was rolled across the test course in neutral gear with the engine switched off. The maximum sound pressure levels in dB (A) high and low of the vehicle were recorded together with the speed.

This measurement was carried out 8 times at different speeds; the different speeds were distributed as evenly as possible across the defined speed range.

Regression analysis is used to establish the relationship between the results and the reference speed.

Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **DOUBLE COIN HOLDINGS LTD.**
Double Coin Heavy-Duty Tyre Co.

0.3. Wet grip test Measurement

0.3.1. Measurement

The test track are in compliance with the requirements of the regulation paragraph 1.1 annex 5

Standard reference test tyre (SRTT) in accordance with the American Society for Testing and Materials (ASTM) standard E 1136 - 93 (re-approved 1998).

Wetting conditions according paragraph 1.2 annex 5

The water depth shall be between 0.5 and 1.5 mm.

The wetted surface temperature shall be between 5 °C and 35 °C and shall not vary during the test by more than 10 °C.

Trailer or special purpose tyre evaluation vehicle method according the regulation paragraph 2.1 annex 5.

Standard vehicle method

according the regulation paragraph 2.2 annex 5.

0.3.2. Test results

The type of tyre complies with the requirements of the regulation paragraph 6.2.1.

0.4. Rolling resistance test Measurement

0.4.1. Measurement

Test equipment tolerances in compliance with the requirements of Appendix 1, Annex 6, Regulation 117 and EC/1235/2011.

Test rim,

For passenger car tyre rims (C1 tyres), the test rim width shall be the same as the measuring rim determined in ISO 4000-1: 2010 clause 6.2.2.

For truck and bus tyres (C2 and C3), the rim width shall be the same as the measuring rim determined ISO 4209-1:2001 clause 5.1.3.

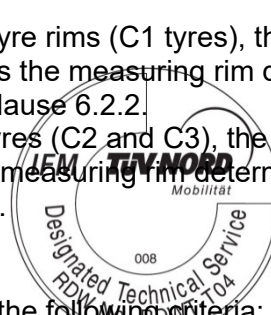
Run-out,

Run-out shall meet the following criteria:

- (a) Maximum radial run-out: 0.5 mm;
- (b) Maximum lateral run-out: 0.5 mm.

Load application

The direction of tyre loading application shall be kept normal to the test.



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
 Manufacturer : **DOUBLE COIN HOLDINGS LTD.
 Double Coin Heavy-Duty Tyre Co.**

surface and shall pass through the wheel centre within
 (a) 1 mrad for the force and deceleration methods;
 (b) 5 mrad for the torque and power methods.

Tyre alignment

Camber angle

The plane of the wheel shall be perpendicular to the test surface within 2 mrad for all methods.

Slip angle

The plane of the tyre shall be parallel to the direction of the test surface motion within 1 mrad for all methods.

Control accuracy

(a) Tyre loading:

(i) For LI ≤ 121 ±20 N or ±0.5 per cent, whichever is greater;

(ii) For LI > 121 ±45 N or ±0.5 per cent whichever is greater;

(b) Cold inflation pressure: ±3 kPa;

(c) Surface speed:

(i) ±0.2 km/h for the power, torque and deceleration methods;

(ii) ±0.5 km/h for the force method;

(d) Time: ±0.02 s.

Instrumentation accuracy

| Parameter | Load Index ≤ 121 | Load Index > 121 |
|--------------------|----------------------------------|----------------------------------|
| Tyre load | ±10 N or ±0.5 % ^(a) | ±30 N or ±0.5 % ^(a) |
| Inflation pressure | ±1 kPa | ±1.5 kPa |
| Spindle force | ±0.5 N or +0.5 % ^(a) | ±1.0 N or +0.5 % ^(a) |
| Torque input | ±0.5 Nm or +0.5 % ^(a) | ±1.0 Nm or +0.5 % ^(a) |
| Distance | ±1 mm | ±1 mm |
| Electrical power | ±10 W | ±20 W |
| Temperature | ±0.2 °C | |
| Surface speed | ±0.1 km/h | |
| Time | ±0.01 s | |
| Angular velocity | ±0.1 % | |

In cases where reverse tyre rotation immediately follows the completion of the forward tyre rotation, a warm-up time for reverse tyre rotation shall be at least 10 minutes for Class C1 tyres and 30 minutes for all other tyre types.

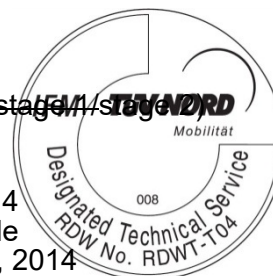
Test surface roughness

The roughness, measured laterally, of the smooth steel drum surface shall have a maximum centreline average height value of 6.3 mm.

Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **DOUBLE COIN HOLDINGS LTD.**
Double Coin Heavy-Duty Tyre Co.

1. General information

- 1.1. Name and address of applicant : DOUBLE COIN HOLDINGS LTD.
Double Coin Heavy-Duty Tyre Co. 2613 Jian Chuan Road, 200245 Minhang Shanghai, P.R.China
- 1.2. Manufacturer and Brand Name(s) or Trade(s) description : Double Coin; Warrior (Trademarks)
RR208(Tread pattern)
- 1.3. Tyre Class : ~~Class C1/ Class C2/~~ Class C3
- 1.4. Category of use : normal/~~snow/special~~
- 1.4.1. Snow tyre for use in severe snow conditions : ~~yes/no~~
- 1.4.2. Traction tyre : ~~yes/no~~
- 1.5. Worst case : refer to RDW announcement 2015-1
- 1.6. Sound level according to paras. 4.4. and 4.5. of Annex 3 at reference speed of ~~70/80~~ km/h : 315/80R22.5 156/152L 73 dB(A)
- limit value for list of tyre size : 73 dB(A) (~~stage 1/stage 2~~)
- 1.7. Wet adhesion level of the representative tyre size, see paragraph 2.5. of Regulation No. 117, as per item 7. of the test report in the Appendix to Annex 5: using vehicle-~~or trailer~~ method : not applicable
- limit value for list of tyre size : not applicable
- 1.8. Rolling resistance coefficient of the representative tyre size, see paragraph 2.5. of Regulation No. 117, according to paragraph 6.2 and 6.3 of Annex 6 using force / ~~torque / deceleration / power~~ method : 315/80R22.5 156/152L 5.38 N/kN
- limit value for list of tyre size : 5.48 N/kN (~~stage 1/stage 2~~)
- 1.9. Test date : April 08, 2014
rolling sound emission : not applicable
wet grip : not applicable
rolling resistance : February 23, 2014
- 1.10. Snow grip index of the representative tyre size, see paragraph 2.5. of Regulation No. 117, according to paragraph 6.4 of Annex 7 using ~~brake on snow method~~⁽²⁾, ~~spin traction method~~⁽²⁾ or acceleration method : not applicable



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **DOUBLE COIN HOLDINGS LTD.**
Double Coin Heavy-Duty Tyre Co.

limit value : not applicable
test date : not applicable

1.11. Final conclusion for all testing : Pass /-~~Fail~~

1.12. Comments (if any) : Addition of tyre size unnecessary for repetition test.

2. 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.

3. Appendices

0 List of modifications

Information document no. : S140002

4. Statement of conformity

The type described in this test report and the appendices attached are in compliance with the Test Specification mentioned above.

The samples / ~~test vehicles~~ used, were representative in terms of the type to be approved.

The Test Report comprises pages 1 to 7.

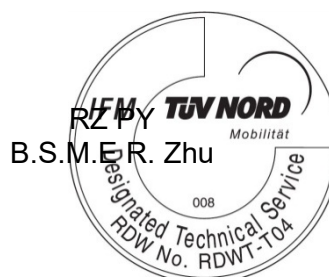
The Test Report shall be reproduced and published in full only and by the client only. It shall be reproduced partially with the written permission of the Test Laboratory only.

TEST LABORATORY

TÜV NORD Mobilität GmbH & Co. KG
IFM - Institut für Fahrzeugtechnik und Mobilität,
Adlerstr. 7, D-45307 Essen

Designated Technical Service
RDW No. RDWT-T04

Shanghai, August 25, 2016



Type : **Tyre / Road Noise Emission and adhesion performance on wet surfaces and Rolling Resistance**
Manufacturer : **DOUBLE COIN HOLDINGS LTD.
Double Coin Heavy-Duty Tyre Co.**

List of modifications

Appendix 0

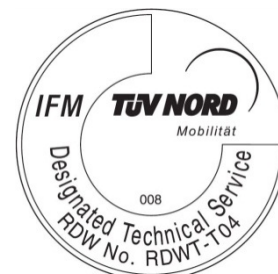
More details for application of : **Date** : **August 25, 2016**

Correction of : -

Modification of : -

Addition of : tyre size unnecessary for repetition test

Deletion of : -



**THE NETHERLANDS
(N E D E R L A N D)****COMMUNICATION**Concerning ⁽¹⁾:

- ~~approval granted~~
- approval extended
- ~~approval refused~~
- ~~approval withdrawn~~
- ~~production definitely discontinued~~

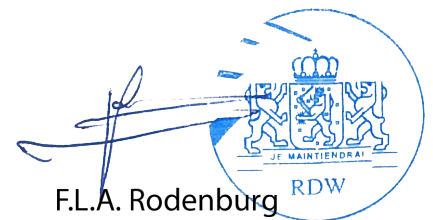
of a type of tyre with regard to 'rolling sound emission level' and/or 'adhesion performance on wet surfaces' and/or 'rolling resistance' pursuant to Regulation number 117.

Approval number: E4-117R-026341-S2R2**Extension number: 01**

1. Manufacturer's name and address(es) : DOUBLE COIN HOLDINGS LTD.
Double Coin Heavy-Duty Tyre Co. 2613 Jian
Chuan Road, 200245 Minhang Shanghai,
P.R.China
2. If applicable, name and address of
manufacturer's representative : not applicable
3. 'Tyre class' and 'category of use' of
the type of tyre : ~~Class C1 / Class C2~~ / Class C3
: normal/~~snow/special~~
- 3.1. Snow tyre for use in severe snow
conditions : ~~yes~~/no ⁽²⁾
- 3.2. Traction tyre : ~~yes~~/no ⁽²⁾
4. Brand(s) name(s) and/or Trade
description(s) of the type of tyre : Double Coin; Warrior (Trademarks)
: RR208(Tread pattern)
5. Technical service and, where
appropriate, test laboratory approved
for purposes of approval or of
verification of conformity tests : TÜV NORD Mobilität GmbH & Co. KG
Institut für Fahrzeugtechnik und Mobilität
Adlerstr. 7
: D-45307 Essen



6. Performance(s) approved : sound level at (~~stage 1~~/stage 2)⁽¹⁾⁽²⁾, ~~wet adhesion level~~, rolling resistance level (~~stage 1~~/stage 2)⁽¹⁾⁽²⁾
- 6.1. Sound level of the representative tyre size, see Paragraph 2.5. of Regulation number 117, as per item 1.6. of the test report in the appendix 1 to Annex 3: 73 dB(A) at reference speed of 70/80 km/h⁽¹⁾.
- 6.2. Wet adhesion level of the representative tyre size, see Paragraph 2.5. of Regulation number 117, as per item 1.7. of the test report in the appendix to Annex 5: --- (G) using the vehicle ~~or trailer~~ method⁽¹⁾.
- 6.3. Rolling resistance level of the representative tyre size, see paragraph 2.5. of Regulation number 117, as per item 1.8. of the test report in the appendix to Annex 6: 5.38 N/kN⁽²⁾.
- 6.4. Snow grip level of the representative tyre size, see paragraph 2.5. of Regulation No. 117, as per item 1.10. of the test report in the appendix⁽²⁾ to Annex 7: --- (Snow grip index) using the ~~brake on snow method~~⁽²⁾, ~~spin traction method~~⁽²⁾ or acceleration method⁽²⁾.
7. Number of report issued by that service : CS117-B0-2016-02790
8. Date of report issued by that service : August 25, 2016
9. Reason(s) of extension (if applicable) : Addition of tyre size
10. Any remarks : ---
11. Place : Zoetermeer
12. Date : 25-OCT-2016
13. Signature :



F.L.A. Rodenburg RDW

14. Annexed to this communication are:
- 14.1. A list of documents in the approval file deposited at the Administration services having delivered the approval and which can be obtained upon request⁽³⁾.
- 14.2. A list of tread-pattern designations: Specify for each trademark or brand name and trade description the list of tyre size designations, adding in case of Class C1 tyres the mark 'reinforced' (or 'extra load') or the speed symbol of snow tyres or in the case of tyres of Classes C2 and C3, the mark 'traction', if so required by paragraph 3.1. of this Regulation.

⁽¹⁾ Strike out what does not apply.

-
- ⁽²⁾ Appendix 2 for C1 and C2 tyres
Appendix 3 for C3 tyres.
- ⁽³⁾ In the case of category of use 'snow' a test report according to appendix of Annex 7 shall be submitted.