

**THE NETHERLANDS  
(N E D E R L A N D)****COMMUNICATION**Concerning <sup>(1)</sup>:

- ~~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- ~~approval withdrawn~~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 UN Regulation number 117.

**Approval number <sup>(2)</sup>: E4\*117R02/13\*10764\*03****Suffix(es) <sup>(3)</sup>: 02S2WR2**

1. Manufacturer's name and address : ZODO TIRE Co., LIMITED  
The South of Yalujiang Road, Wenzhuang  
Village Qinghe Agency of Cao County Heze  
City, Shandong Province 274400 China(PRC)
2. If applicable, name and address of  
manufacturer's representative : N/A
3. "Tyre class" of the type of tyre : C1
4. "Category of use" of the type of tyre : Snow
- 4.1. Snow tyre for use in severe snow  
conditions : yes/~~no~~ <sup>(1)</sup>
- 4.2. Traction tyre : yes/no <sup>(1)</sup>
5. Tyre structure : Radial
6. Tyre type designation :

- 6.1. Brand name(s)/trademark(s) of the type of tyre : GRENLANDER; CONSTANCY; ILINK; FRONWAY; SAILWIN; ARIVO; XBRI; LUXXAN; RHINO; TTYRE; CRYSTAL; ROCKBLADE; ROADMARCH; KANGS; ZMAX; XCENTWAY
- 6.2. Trade description(s)/Commercial name(s) of the type of tyre : Winter GL868; Winter IL868; LY868; ICEPOWER 868; ICEWINNER 868; WINMASTER ARW2; COMMANDER W7; THIRTY TWO; ROCK 868S; SNOWROVER 868; ICEPIONEER 868
7. Technical service and, where applicable, test laboratory approved for purposes of approval or of verification of conformity tests : IDIADA Automotive Technology, S.A.  
L'Albornar, P.O. Box 20  
43710 Santa Oliva (Tarragona), SPAIN
8. Performance(s) approved : sound level at (~~stage 1~~/stage 2)<sup>(1)</sup>, wet adhesion level, rolling resistance level (~~stage 1~~/stage 2)<sup>(1)</sup>
- 8.1. Sound level of the representative tyre size, see paragraph 2.7. of this Regulation, as per item 7. of the test report in Appendix 1 to Annex 3: 73 dB(A) at reference speed of 70/80 km/h<sup>(1)</sup>.
- 8.2. Wet adhesion level of the representative tyre size, see paragraph 2.7. of this Regulation, as per item 7. of the test report in the appendix to Annex 5: 1.29 (G) using the vehicle or trailer method<sup>(1)</sup>.
- 8.3. Rolling resistance level of the representative tyre size, see paragraph 2.7. of this Regulation, as per item 7. of the test report in Appendix 1 to Annex 6: 10.42 N/kN
- 8.4. Snow grip level of the representative tyre size, see paragraph 2.7. of Regulation No. 117, as per item 7. of the test report in the appendix<sup>(4)</sup> to Annex 7: 1.38 (Snow grip index) using the brake on snow method<sup>(1)</sup>, ~~spin traction method~~<sup>(1)</sup> or ~~acceleration method~~<sup>(1)</sup>.
9. Number of report issued by that service : CN20070830  
CN20100482  
CN22030647
10. Date of report issued by that service : 23/07/2020  
21/10/2020  
17/03/2022
11. Reason(s) of extension (if applicable) : Upgrade of regulation supplement number;  
Addition of tyre size designation
12. Any remarks : N/A



**Approval number: E4\*117R02/13\*10764\*03**

13. Place : Zoetermeer
14. Date : 05 April 2022
15. Signature :



I.M.A. Soekroella RDW

16. Annexed to this communication are:
- 16.1. A list of documents in the approval file deposited at the Type Approval Authorities having delivered the approval and which can be obtained upon request<sup>(5)</sup>.
- 16.2. A list of tyre size designations: Specify for each brand name/trademark and/or each trade description/Commercial name the list of tyre size designations and service descriptions, adding in case of Class C1 tyres whether "reinforced" (or "extra load") or not.

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<sup>(1)</sup> Strike out what does not apply.

<sup>(2)</sup> According to Schedule 4 to Revision 3 of the 1958 Agreement.

<sup>(3)</sup> According to paragraphs 5.2.2. and 5.3.1.2. of this Regulation.

<sup>(4)</sup> Appendix 2 for C1 and C2 tyres.

Appendix 3 for C3 tyres.

<sup>(5)</sup> In the case of 'snow tyre for use in severe snow conditions' a test report according to Appendix 2 or Appendix 3, as applicable, to Annex 7 shall be submitted.

TECHNICAL DOCUMENTATION

**RELATING TO ECE TYPE-APPROVAL FOR A TYPE OF TYRE WITH REGARD TO ROLLING SOUND EMISSIONS AND TO ADHESION PERFORMANCE ON WET SURFACES AND/OR TO ROLLING RESISTANCE (ECE Regulation No. 117. 02, Supplement 13)**

1. GENERAL

- 1.1. The performance characteristics to be assessed for the tyre type : rolling sound emission level and adhesion performance level on wet surfaces and rolling resistance and snow performance level of snow tyre for use in severe snow conditions
- 1.2. Manufacturer's name : ZODO TIRE CO., LIMITED
- 1.3. Name and address of applicant : The South of Yalujiang Road, Wenzhuang Village, Qinghe Agency of Cao County, Heze City, Shandong Province, 274400, China (PRC)
- 1.4. Address(es) of manufacturing plant(s) : same with the applicant
- 1.5. Brand name(s), Trade description(s) or Trade mark(s) to be used for particular tyre type-approval requested : Brand name: GRENLANDER; CONSTANCY; ILINK; FRONWAY; SAILWIN; ARIVO; XBRI; LUXXAN; RHINO; TTYRE; CRYSTAL; ROCKBLADE; ROADMARCH; KANGS; ZMAX; XCENTWAY  
Tread pattern: Winter GL868; Winter IL868; LY868; ICEPOWER 868; ICEWINNER 868; WINMASTER ARW2; COMMANDER W7; THIRTY TWO; ROCK 868S; SNOWROVER 868; ICEPIONEER 868

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
- 2.4. For Class C1 tyres, state weather :
- 2.4.1. Reinforced (or extra load) in case of approval with regarding to rolling sound emission level : see attached "list of tyre size"
- 2.4.2. Speed category symbol "Q" or below (not including "H") or "R" and above (including "H") in case of snow tyres for approval with regarding to adhesion on wet surfaces : not applicable
- 2.5. For Class C2 or C3 tyres, state weather "Traction tyre" : ~~Yes~~ / ~~No~~
- 2.6. Category of use (normal, snow, special) : ~~normal~~ / snow (snow tyre for use in severe snow conditions) / ~~special~~
- 2.7. A list of tyre designations covered by this application : see attached "list of tyre size"
- 2.8. 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. : see attached "drawing of tread pattern"
- 2.9. In the case of "special use tyre", drawing of the tread pattern supplied in order to verify the void-to-fill ratio. : not applicable

MANUFACTURER'S STAMP



Signature : *Ren Hailong*

Name:

THIS APPLICATION IS ACCOMPANIED BY:

- List of tyre size

Manufacturer: ZODO TIRE Co., LIMITED

E4\*117R02/13\*10764\*03

- Drawing of tread pattern
- The test report

List of tyre size

Brand name(s) or Trade mark(s) : GRENLANDER; CONSTANCY; ILINK; FRONWAY;  
SAILWIN; ARIVO; XBRI; LUXKAN; RHINO; TTYRE;  
CRYSTAL; ROCKBLADE; ROADMARCH; KANGS;  
ZMAX; XCENTWAY

Tread pattern : Winter GL868; Winter IL868; LY868; ICEPOWER 868;  
ICEWINNER 868; WINMASTER ARW2; THIRTY TWO;  
ROCK 868S; SNOWROVER 868; COMMANDER W7;  
ICEPIONEER 868


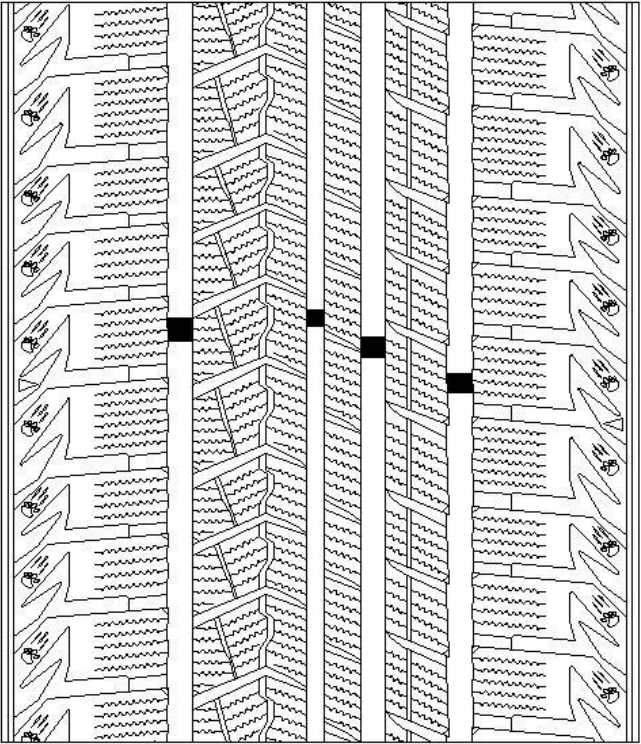
No.	Tyre size	Standard/ Extra load	load	Speed	Approval No.	Limit value for Sound level stage 1/ stage 2	limit for wet grip index	Rolling resistance maximum values for stage 1/ stage 2 (N/kN)
1	155/65R13	Standard	73	T	E4-02114167	71	1.1	11.5
2	165/70R13	Standard	79	T	E4-02114169	71	1.1	11.5
3	175/70R14	Extra load	88	T	E4-02115914	71	1.1	11.5
4	185/60R14	Standard	82	T	E4-02115886	71	1.1	11.5
5	185/65R14	Standard	86	H	E4-0297201	71	1.1	11.5
6	195/60R14	Standard	86	H	E4-0297219	72	1.1	11.5
7	185/60R15	Standard	84	H	E4-02115915	71	1.1	11.5
8	185/65R15	Standard	88	H	E4-0297202	71	1.1	11.5
9	195/55R15	Standard	85	V	E4-0297206	72	1.1	11.5
10	195/60R15	Standard	88	H	E4-0297207	72	1.1	11.5
11	195/65R15	Extra load	95	T	E4-02115890	72	1.1	11.5
12	205/65R15	Standard	94	H	E4-0297211	72	1.1	11.5
13	205/55R16	Standard	91	H	E4-0297210	72	1.1	11.5
14	205/55R16	Extra load	94	H	E4-02115887	72	1.1	11.5
15	205/60R16	Extra load	96	H	E4-02115888	72	1.1	11.5
16	215/60R16	Standard	99	H	E4-0297212	72	1.1	11.5
17	215/55R17	Extra load	98	V	E4-02115891	72	1.1	11.5
18	225/55R17	Extra load	101	V	E4-02115889	72	1.1	11.5
19	155/70R13	Standard	75	T	E4-02114330	71	1.1	11.5
20	155/65R14	Standard	75	T	E4-02114333	71	1.1	11.5
21	165/65R14	Standard	79	T	E4-02114022	71	1.1	11.5
22	165/70R14	Extra load	85	T	E4-02115893	71	1.1	11.5
23	175/65R15	Standard	84	T	E4-02115894	71	1.1	11.5
24	195/55R16	Extra load	91	H	E4-02115895	72	1.1	11.5
25	205/50R17	Extra load	93	H	E4-02115896	72	1.1	11.5
26	215/50R17	Extra load	95	H	E4-02115897	72	1.1	11.5
27	215/55R16	Extra load	97	H	E4-02115898	72	1.1	11.5
28	215/70R15	Standard	98	T	E4-02115899	72	1.1	11.5
29	215/70R16	Standard	100	T	E4-02115900	72	1.1	11.5
30	225/40R18	Extra load	92	H	E4-02115901	72	1.1	11.5
31	225/45R18	Extra load	95	H	E4-02115902	72	1.1	11.5


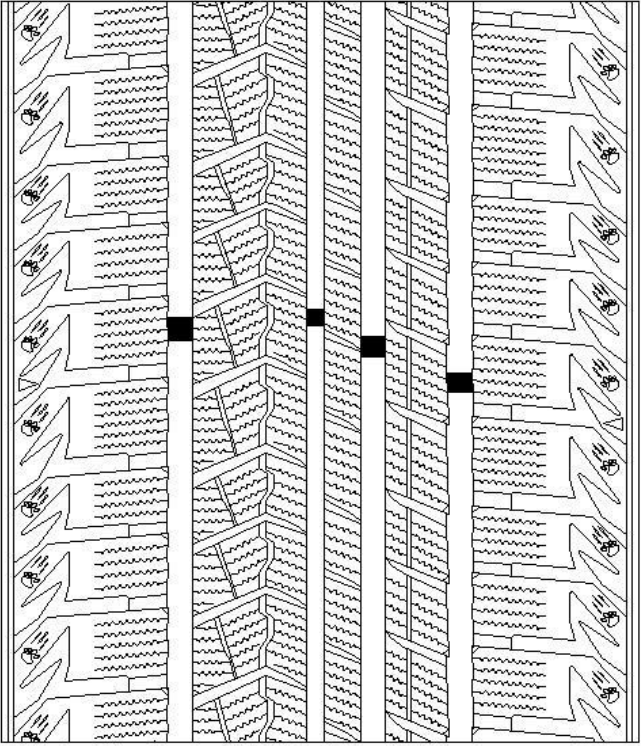
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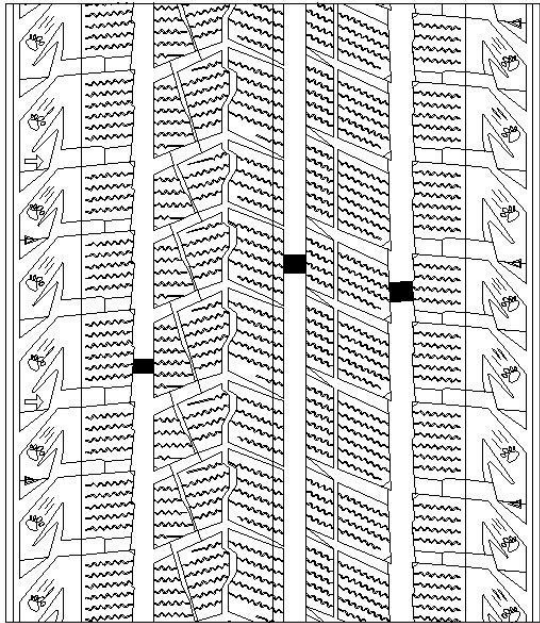
32	225/50R17	Extra load	98	H	E4-02115903	72	1.1	11.5
33	225/70R16	Extra load	107	T	E4-02115904	72	1.1	11.5
34	235/45R17	Extra load	97	H	E4-02115905	72	1.1	11.5
35	235/45R18	Extra load	98	H	E4-02115906	72	1.1	11.5
36	235/55R17	Extra load	103	H	E4-02115907	72	1.1	11.5
37	235/60R18	Extra load	107	H	E4-02104187	72	1.1	11.5
38	235/65R17	Extra load	108	T	E4-02115908	72	1.1	11.5
39	245/45R18	Extra load	100	H	E4-02115909	72	1.1	11.5
40	245/70R16	Extra load	111	T	E4-02115910	72	1.1	11.5
41	255/55R18	Extra load	109	H	E4-02115911	73	1.1	11.5
42	265/65R17	Standard	112	T	E4-02109493	73	1.1	11.5
43	265/70R16	Standard	112	T	E4-02102185	73	1.1	11.5
44	265/70R17	Standard	115	T	E4-02115912	73	1.1	11.5
45	275/45R20	Extra load	110	H	E4-02115913	73	1.1	11.5
46	285/60R18	Standard	116	H	E4-02115892	75	1.1	11.5
47	195/60R16	Standard	89	H	E4-0299160	72	1.1	11.5
48	275/60R20	Extra load	119	H	E4-0298610	73	1.1	11.5
49	245/40R18	Extra load	97V	V	E4-02125224	72	1.1	11.5
50	235/55R19	Extra load	105	H	E4-02125225	72	1.1	11.5
51	245/55R19	Extra load	107	H	E4-02125226	72	1.1	11.5
52	245/45R19	Extra load	102	H	E4-02125227	72	1.1	11.5
53	255/50R19	Extra load	107	H	E4-02125228	73	1.1	11.5
54	255/55R19	Extra load	111	H	E4-02125229	73	1.1	11.5
55	255/45R20	Extra load	105	V	E4-02125230	73	1.1	11.5
56	275/40R20	Extra load	106	H	E4-02125231	73	1.1	11.5
57	215/60R17	Standard	96	H	E4-02115922	72	1.1	11.5
58	225/60R17	Standard	99	H	E4-0299161	72	1.1	11.5
59	235/60R17	Standard	102	H	E4-02109491	72	1.1	11.5
60	245/65R17	Standard	107	S	E4-0297781	72	1.1	11.5
61	255/60R17	Extra load	110	T	E4-02126890	73	1.1	11.5
62	245/60R18	Standard	105	H	E4-02109497	72	1.1	11.5
63	255/60R18	Extra load	112	T	E4-02109499	73	1.1	11.5
64	265/70R18	Standard	116	S	E4-02126891	73	1.1	11.5
65	315/35R20	Extra load	110	V	E4-02125232	75	1.1	11.5
66	235/60R16	Standard	100	H	E4-0298357	72	1.1	11.5
67	225/60R18	Extra load	104	H	E4-02125241	72	1.1	11.5
68	265/60R18	Standard	110	T	E4-02109502	73	1.1	11.5
69	215/60R17	Standard	96	T	E4-02111412	72	1.1	11.5
70	235/60R17	Extra load	106	H	E4-02122437	72	1.1	11.5
71	255/60R18	Extra load	112	H	E4-02109500	73	1.1	11.5
72	265/70R18	Standard	116	T	E4-02122444	73	1.1	11.5
73	<u>225/65R17</u>	<u>Standard</u>	<u>102</u>	<u>H</u>	<u>E4-0299162</u>	<u>72</u>	<u>1.1</u>	<u>11.5</u>

Worst Case Selection	
Representative tyre size for rolling sound emission	315/35R20 110V XL
Worst Case Criteria for rolling sound emission	Widest
Representative tyre size for wet grip	285/60R18 116H
Worst Case Criteria for wet grip	The wet grip test result of 285/60R18 116H is G=1.29, which is 110% above the limit value of ECE-R117(for snow tyre for us,the110% limit value is G=1.1)
Representative tyre size for snow grip	285/60R18 116H
Worst Case Criteria for snow grip	Any tyre size that meets the required value of the regulation plus the safety margin (or more) represents the whole range
Representative tyre size for rolling resistance	155/65R13 73T
Worst Case Criteria for rolling resistance	Lowest load capacity index



Drawing of the tread pattern (for measured tyre using for tyre noise)	
Manufacturer name  Pattern name  Tyre Size  Market  Marking	: ZODO TIRE Co., LIMITED  Winter GL868; Winter IL868; LY868; ICEPOWER 868; ICEWINNER 868; WINMASTER ARW2; THIRTY TWO; ROCK 868S; SNOWROVER 868; COMMANDER W7; ICEPIONEER 868;  : 315/35R20 110V  : EU/US  :  M+S
Pitch number  Pitch ratio	: 62  : 0.9/1.0/1.1/1.2
Void volume [ % ]  Width: main grooves [mm]  Depth: center groove [mm]  Depth: shoulder groove [mm]	: 64  : 13.6/14.2/8.6/14.2  : 8.5  : 5
Tyre tread pattern	: 

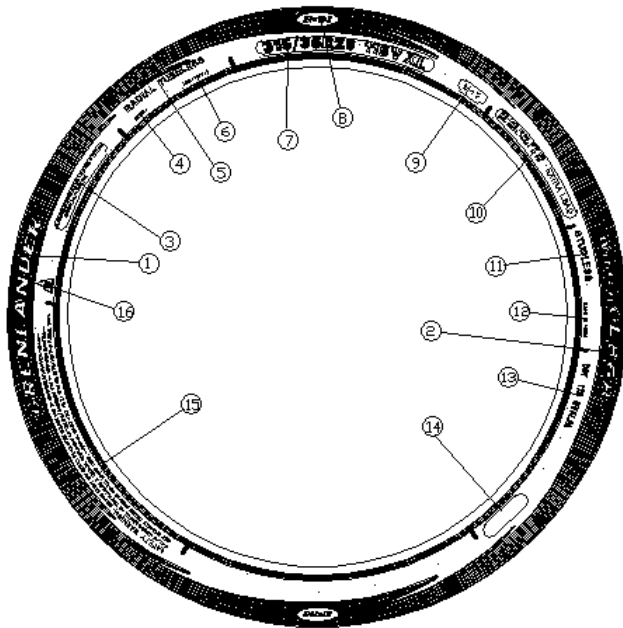
Drawing of the tread pattern (for measured tyre using for tyre noise and wet grip)	
Manufacturer name  Pattern name  Tyre Size  Market  Marking	: ZODO TIRE Co., LIMITED  Winter GL868; Winter IL868; LY868; ICEPOWER 868; ICEWINNER 868; WINMASTER ARW2; THIRTY TWO; ROCK 868S; SNOWROVER 868; COMMANDER W7; ICEPIONEER 868;  : 285/60R18 116H  : EU/US  :  M+S
Pitch number  Pitch ratio	: 68  : 0.9/1.0/1.1/1.2
Void volume [ % ]  Width: main grooves [mm]  Depth: center groove [mm]  Depth: shoulder groove [mm]	: 64  : 12/8/11/12  : 8  : 8
Tyre tread pattern	

Drawing of the tread pattern (for measured tyre using for tyre rolling resistance test)	
Manufacturer name Pattern name Tyre Size Market Marking	: ZODO TIRE Co., LIMITED : Winter GL868; Winter IL868; LY868; ICEPOWER 868; : ICEWINNER 868; WINMASTER ARW2; THIRTY TWO; : ROCK 868S; SNOWROVER 868; COMMANDER W7; : ICEPIONEER 868; : 155/65R13 73T : EU/US :  M+S
Pitch number Pitch ratio	: 58 : 1/1.17/1.23
Void volume [ % ] Width: main grooves [mm] Depth: center groove [mm] Depth: shoulder groove [mm]	: 64 : 6.2/6.7/7.3 : 7.7 : 7
Tyre mass [kg] Tread depth [mm] Tread width [mm] Curvature radius of tread crown [mm] Tyre outer diameter [mm] Tread plies	: 5.387 : 7.7 : 112 : 260 : 528.2 : 1POLYESTER + 2 STEEL + 1NYLON
Tyre tread pattern	: 

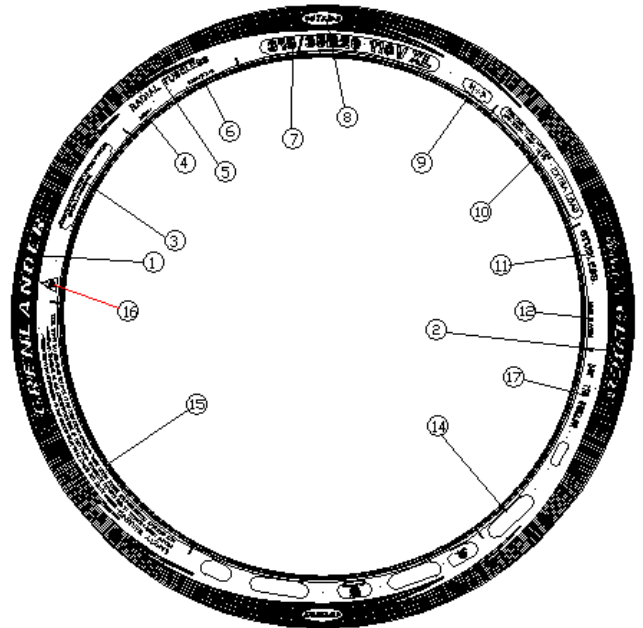
Drawing of the tyre sidewall

Tyre Size

: 315/35R20 110V XL



Upper mold



Lower mold

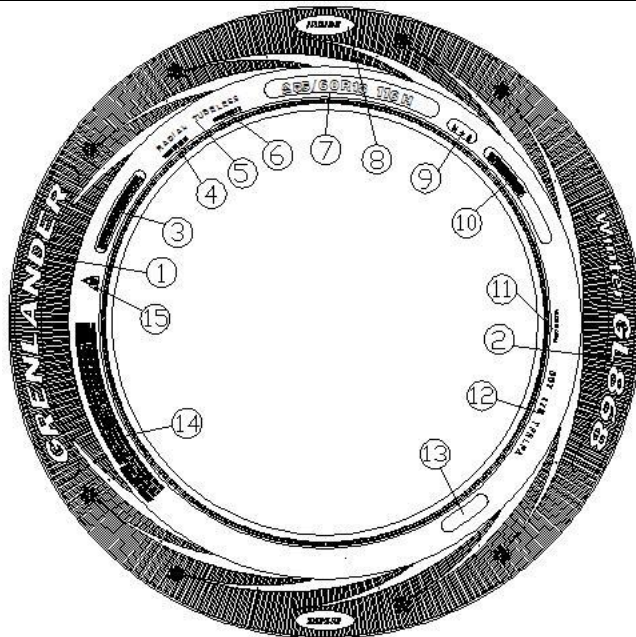
1. GRENLANDER	1. GRENLANDER
2. Winter GL868	2. Winter GL868
3. PLYS:TREAD 2POLYESTER+2STEEL+1NYLON SIDEWALL 2POLYESTER	3. PLYS:TREAD 2POLYESTER+2STEEL+1NYLON SIDEWALL 2POLYESTER
4. RIM:11J	4. RIM:11J
5. RADIAL TUBELESS	5. RADIAL TUBELESS
6. MOLD NO.	6. MOLD NO.
7.315/35R20 110V XL	7. 315/35R20 110V XL
8.INSIDE	8.OUTSIDE
9.M+S	9.M+S
10.MAX. LOAD 1060kg (2337LBS) MAX. PRESS. 340 kPa (50 PSI) EXTRA LOAD	10. MAX. LOAD 1060kg (2337LBS) MAX. PRESS. 340 kPa (50 PSI) EXTRA LOAD
11.STUDLESS	11.STUDLESS
12. MADE IN CHINA	12. MADE IN CHINA
13. DOT 17B WWKLPA	14. (E4) XXXXXXX
14. (E4) XXXXXXX	15. SAFETY WARNING
15. SAFETY WARNING	16. 
16. 	17. DOT 17B WWKLPA XXXX(DATE CODE)

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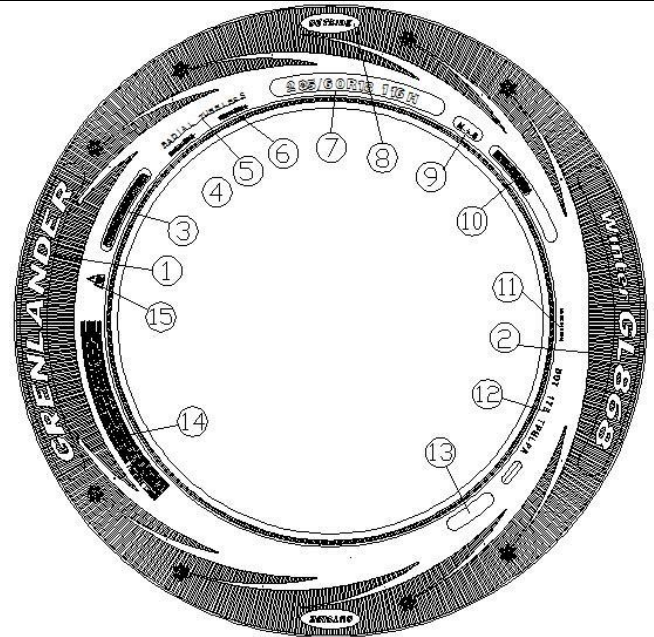
Drawing of the tyre sidewall

Tyre Size

: 285/60R18 116H



Upper mold



Lower mold

1. GRENLANDER	1. GRENLANDER
2. Winter GL868	2. Winter GL868
3. PLYES:TREAD 2POLYESTER+2STEEL+1NYLON SIDEWALL 2POLYESTER	3. PLYES:TREAD 2POLYESTER+2STEEL+1NYLON SIDEWALL 2POLYESTER
4. RIM:8 1/2J	4. RIM:8 1/2J
5. RADIAL TUBELESS	5. RADIAL TUBELESS
6. MOLD NO.	6. MOLD NO.
7.285/60R18 116H	7.285/60R18 116H
8.INSIDE	8.OUTSIDE
9.M+S	9.M+S
10.MAX. LOAD 1250kg (2756 LBS) MAX. PRESS. 300 kPa (44 PSI)	10.MAX. LOAD 1250kg (2756 LBS) MAX. PRESS. 300 kPa (44 PSI)
11. MADE IN CHINA	11. MADE IN CHINA
12. DOT 17B TPHLPA	12. DOT 17B TPHLPA XXXX(DATE CODE)
13. (E4)XXXXXXX	13. (E4)XXXXXXX
14. SAFETY WARNING	14. SAFETY WARNING
15.	15.

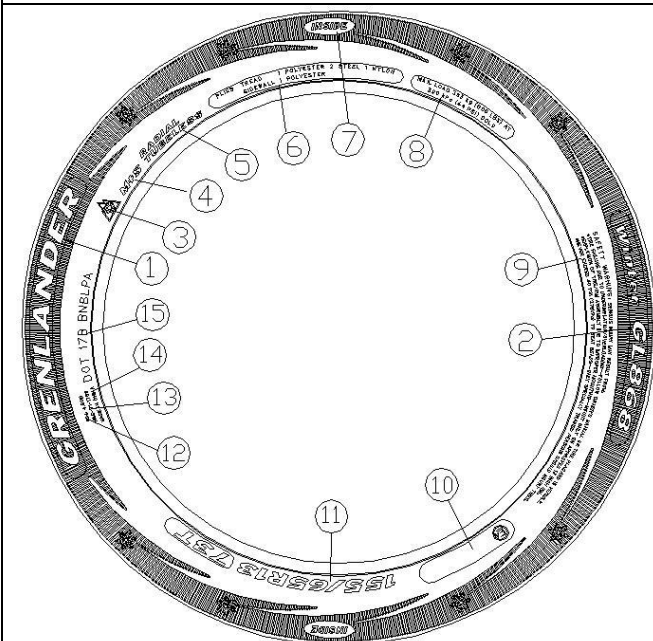
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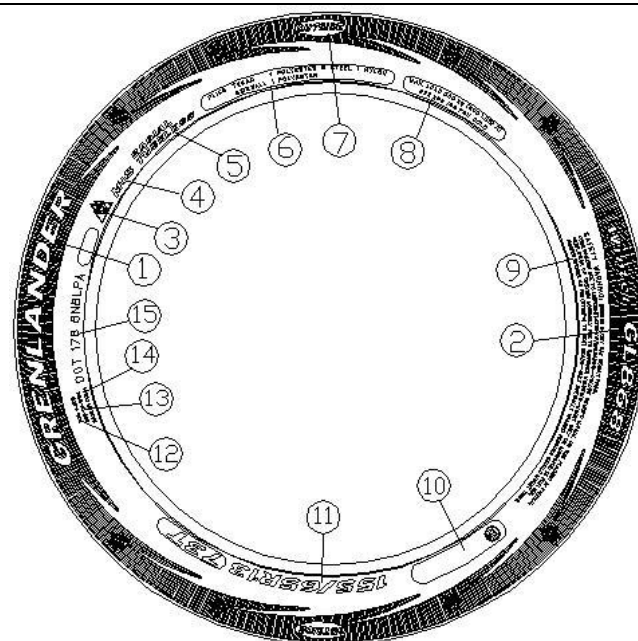
Drawing of the tyre sidewall

Tyre Size

: 155/65R13 73T



Upper mold



Lower mold

1. GRENLANDER	1. GRENLANDER
2. Winter GL868	2. Winter GL868
3. 	3. 
4. M+S	4. M+S
5. RADIAL TUBELESS	5. RADIAL TUBELESS
6. PLIES: TREAD 1 POLYESTER 2 STEEL 1 NYLON SIDEWALL 1 POLYESTER	6. PLIES: TREAD 1 POLYESTER 2 STEEL 1 NYLON SIDEWALL 1 POLYESTER
7. INSIDE	7. OUTSIDE
8. MAX. LOAD 365kg (805 LBS) AT 300 kPa (44 PSI) COLD	8. MAX. LOAD 365kg (805 LBS) AT 300 kPa (44 PSI) COLD
9. SAFETY WARNING	9. SAFETY WARNING
10.  XXXXXXXX	10.  XXXXXXXX
11. 155/65R13 73T	11. 155/65R13 73T
12. RIM: 4.50B	12. RIM: 4.50B
13. MOLD NO.	13. MOLD NO.
14. MADE IN CHINA	14. MADE IN CHINA
15. DOT 17B BNBLPA	15. DOT 17B BNBLPA XXXX (DATE CODE)

CN22030647

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**REPORT N° CN22030647****UN/ECE REGULATION 117R02/13 RELATED TO ROLLING SOUND EMISSIONS, ADHESION ON WET SURFACES AND ROLLING RESISTANCE**

Approval number : E4\*117R02/13\*10764\*03  
Approved performances : 02S2WR2

Applicant : ZODO TIRE Co., LIMITED  
The South of Yalujiang Road, Wenzhuang Village Qinghe  
Agency of Cao County Heze City, Shandong Province  
274400 China(PRC)

Manufacturer : ZODO TIRE Co., LIMITED  
The South of Yalujiang Road, Wenzhuang Village Qinghe  
Agency of Cao County Heze City, Shandong Province  
274400 China(PRC)

Tyre class : C1

Category of use : Snow (for use in severe snow conditions)

Traction tyre : N/A

Brand name / Trade mark : GRENLANDER; CONSTANCY; ILINK; FRONWAY;  
SAILWIN; ARIVO; XBRI; LUXXAN; RHINO; TTYRE;  
CRYSTAL; ROCKBLADE; ROADMARCH; KANGS;  
ZMAX; XCENTWAY

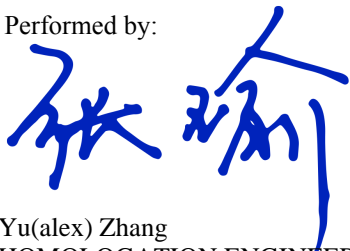
Trade description/ Commercial name : Winter GL868; Winter IL868; LY868; ICEPOWER 868;  
ICEWINNER 868; WINMASTER ARW2;  
COMMANDER W7; THIRTY TWO; ROCK 868S;  
SNOWROVER 868; ICEPIONEER 868

Place and date of issue : L'Albornar, Santa Oliva (Tarragona), 17/03/2022

CONCLUSIONS: The tested samples of the family FULFIL the technical prescriptions with regard to “rolling sound emissions level” and/or “adhesion performance on wet surfaces” and/or “rolling resistance” pursuant to UN/ECE REGULATION No. 117 supplement 13 to the 02 series of amendments. The test procedure for measuring wet grip does not take into account the provisions of Supplement 13.

The characteristics of the tested samples are detailed in the annexes to the test report.

Performed by:

Yu(alex) Zhang  
HOMOLOGATION ENGINEER

Revised by:

Josep Masip Gomez  
DEPARTMENT MANAGER

**REPORT N° CN22030647****SUMMARY**

1. Dimensions included in the type of tyre : See Manufacturer's technical documentation attached
2. Tyre sizes selected for testing
  - 2.1. Tyre size tested for rolling sound emissions : 315/35R20 110V XL (Largest section width and smallest nominal aspect ratio)  
See Annex 1, Test report CN20090369, IDIADA, 09/09/2020
  - 2.2. Tyre size tested for adhesion on wet surfaces: 285/60R18 116H (meets extra 10%)  
See type approval E4\*117R02/09\*10764\*00, Test report CS117-A0-2019-00612, TÜV NORD Mobilita GmbH&Co.KG, 21/03/2019
  - 2.3. Tyre size tested for rolling resistance : 155/65R13 73T (new calculated limit value, see point 4)  
See type approval E4\*117R02/09\*10764\*00, Test report CS117-A0-2019-00612, TÜV NORD Mobilita GmbH&Co.KG, 04/04/2019
  - 2.4. Tyre size tested for snow performance : 285/60R18 116H (The largest nominal section)  
See type approval E4\*117R02/09\*10764\*00, Test report CS117-A0-2019-00612, TÜV NORD Mobilita GmbH&Co.KG, 15-16/01/2019
3. Reason(s) of extension (if applicable) :
  - Upgrade of regulation supplement number
  - Addition of tyre size designation
4. List of Annexes to this report
  - 4.1. Annex 1: Test report according to rolling sound emission level.
  - 4.2. Annex: Manufacturer's technical documentation.

Place and date of issue: L'Albornar, Santa Oliva (Tarragona), 17/03/2022



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**ANNEX TO THE TEST REPORT**  
**ROLLING SOUND EMISSIONS, REPORT N° CN20090369**

**1. TEST DATA**

**1.1. Test tyre details**

- 1.1.1 Applicant : ZODO TIRE CO., LIMITED.  
The South of Yalujiang Road, Wenzhuang Village Qinghe Agency of Cao County Heze City, Shandong Province 274400 China(PRC)
- 1.1.2 Manufacturer : ZODO TIRE CO., LIMITED.  
The South of Yalujiang Road, Wenzhuang Village Qinghe Agency of Cao County Heze City, Shandong Province 274400 China(PRC)
- 1.1.3 Tyre class : C1
- 1.1.4 Category of use : Snow (for use in severe snow conditions)
- 1.1.5 Traction tyre : N/A
- 1.1.6 Brand name / Trade mark : GRENLANDER
- 1.1.7 Trade description / Commercial name : Winter GL868
- 1.1.8 Tyre size : 315/35R20 110V XL
- 1.1.9 Load index / Corresponding mass  $Q_r$  [kg] : 110 / 1,060
- 1.1.10 Tyre structure : Radial
- 1.1.11 Date code, other manufacturer markings : 3320, 17BWWKLPA
- 1.1.12 Reference inflation pressure  $P_r$  [kPa] : 290
- 1.1.13 Test inflation pressure  $P_t$  [kPa] :

	<b><math>P_t</math> [kPa] admissible values</b>
Front axle left wheel	$186.00 \leq 190.00 \leq 204.59$
Front axle right wheel	$186.93 \leq 190.00 \leq 205.63$
Rear axle left wheel	$197.33 \leq 200.00 \leq 217.06$
Rear axle right wheel	$201.13 \leq 205.00 \leq 221.25$

$P_t \geq 150$  kPa

FULFILS / ~~NOT FULFILS~~

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\* THE PRESENTED RESULTS REFER ONLY TO THE TESTED SAMPLE.  
 \* THE PARTIAL REPRODUCTION OF THIS REPORT WITHOUT THE PERMISSION OF IDIADA IS COMPLETELY FORBIDDEN.  
 \* MEASUREMENT UNCERTAINTY OF THE RESULTS HAS BEEN CALCULATED BY THE LABORATORY.

1.1.14 Test tyre internal reference :

Front left	Front right
CN-2008/01373-01	CN-2008/01373-02
Rear left	Rear right
CN-2008/01373-03	CN-2008/01373-04

1.1.15 Test rim : 10.5 x 20

1.1.16 Test rim internal reference :

Front left	Front right
CN-2006/01265-01	CN-2006/01265-02
Rear left	Rear right
CN-2006/01265-03	CN-2006/01265-04

1.1.17 Test tyre load [kg] :

	kg	$Q_t$ [N] / % $\frac{Q_t}{Q_r}$
Front axle left wheel	743	50 < 70.09 < 90
Front axle right wheel	746	50 < 70.38 < 90
Rear axle left wheel	779	50 < 73.49 < 90
Rear axle right wheel	791	50 < 74.62 < 90

FULFILS / NOT FULFILS

$Q_{t,avr}$ [N] / % $\frac{Q_{t,avr}}{Q_r}$
70 ≤ 72.15 ≤ 80

FULFILS / NOT FULFILS

**1.2. Test vehicle**

1.2.1	Trade name	: Volkswagen
1.2.2	Model	: TOUAREG
1.2.3	Year	: 2014
1.2.4	Transmission	: Automatic
1.2.5	Wheelbase [mm]	: 2,904

For Class C1 less than 3,500 mm.

FULFILS / NOT FULFILS

1.2.6	Vehicle internal reference	: CN-2001/02096
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**1.3. Test equipment**

1.3.1	Sound level meter 1	: 3024593
1.3.2	Sound level meter 2	: 3024412
1.3.3	Manometer	: DYM3
1.3.4	Weight scale	: SCS-5 / SCS-10
1.3.5	Track temperature measurement device	: 182329
1.3.6	Wind speed measurement device	: MM-0316
1.3.7	Speed measurement device	: VBOX sport 07013178
1.3.8	Ambient temperature measurement device	: 182330

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**2. TEST TRACK**

**2.1. Environment**

2.1.1 Air temperature  $T_a$  [°C] : 29.8

$5.0 < T_a < 40.0$

FULFILS / ~~NOT FULFILS~~

2.1.2. Test surface temperature  $T_s$  [°C] : 38.3

$5.0 \leq T_s \leq 50.0$

FULFILS / ~~NOT FULFILS~~

2.1.3 Wind speed [m/s] : 1.4

Less than 5 m/s

FULFILS / ~~NOT FULFILS~~

2.1.4 Ambient noise [dB(A)] : 36.5

Test result – Ambient noise  $\geq 10$  dB(A)

FULFILS / ~~NOT FULFILS~~

2.1.5 Wind direction [°] : 187.0

**2.2. Date and report number of check on compliance of the test surface with ISO 10844:2014:**

- Report number: 20FM-ISO10844-ISO2
- Date of check: 12<sup>th</sup> June 2020
- Issued by: IDIADA

**3. TEST RESULTS**

Reference Speed:  $v_{ref}$  [km/h] : 80  
 Range Speed [km/h] : 70.0 - 90.0

Run No.	Test speed [km/h]	Direction of run	Sound level left measured [dB(A)]	Sound level right measured [dB(A)]	Air temp. [°C]	Surface temp. [°C]	Sound level left temp. corrected [dB(A)]	Sound level right temp. corrected [dB(A)]
1	72.6	S → N	73.3	72.3	29.6	38.0	73.8	72.8
2	74.3	S → N	73.0	72.3	30.0	37.3	73.5	72.8
3	76.7	N → S	73.7	73.3	30.4	39.3	74.3	73.9
4	78.2	S → N	73.5	73.4	30.0	38.9	74.1	74.0
5	82.3	N → S	74.2	73.2	30.4	38.3	74.7	73.7
6	84.3	S → N	74.0	73.7	29.2	37.9	74.5	74.2
7	86.5	N → S	74.4	74.1	30.7	38.4	75.0	74.7
8	88.4	S → N	74.4	74.6	28.4	38.3	74.9	75.1

3.1. Regression line slope : 19.58

3.2. Sound level after temperature correction according to paragraph 4.3 of Annex 3 [dB(A)] : 74.1

3.3. Sound level according to paragraph 4.4. and 4.5. of Annex 3 [dB(A)] : 73

3.4. Limit value [dB(A)] :

C1	
Stage 2	
Nominal Section width	Limit dB (A)
185 and lower	70
Over 185 up to 245	71
Over 245 up to 275	72
Over 275	74

The above limits shall be increased by 1 dB(A) for "snow tyre for use in severe snow conditions", extra load tyres or reinforced tyres, or any combination of these classifications.

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## 4. TEST TYRE PICTURES



Picture 1. Sidewall



Picture 2. Tread pattern

Place of test: ICPG, China

Date of test: 09/09/2020

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