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998 Shifeng Road, Jinhua
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321016 China



your signature

your order from

our Signature

Date
06.07.2022

TESTREPORT

SUPPLEMENTARY GRIP DEVICE

KB

FOR TIRES OF PASSENGER CARS AND LIGHT DUTY VEHICLES
ADAPTATION TO EN ÖNORM 16662-1:2020 and ÖNORM V5117:2021

APPLICANT : Jinhua Huanan Auto-Parts Co., Ltd
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Zhejiang
321016 China

REPORT-NR.: 2022/073553

Report Copy1/...2

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This report consists of 10 pages and relates exclusively to the test item described in the form available to the test laboratory. It may only be published in its entirety and unchanged with the written approval of the test center.



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I. INTRODUCTION

1. GENERAL

Jinhua Huanan Auto-Parts Co., Ltd, 998 Shifeng Road, Jinhua, Zhejiang, 321016 China requested the inspection of the grip device described below for tires on passenger vehicles and light duty vehicles with the type designation “KB”.

The tests are based on the ÖNORM EN 16662-1 edition 07/15/2020, which specifies the requirements and tests for grip devices which are intended for installation on passenger car wheels in accordance with the ETRTO manual and when used as intended, offer a minimum level of anti-slip safety. Since ÖNORM V5117:2021 refers to ÖNORM EN 16662-1:2020 in all points, only ÖNORM EN 16662-1:2020 is mentioned in the results of the following points.

2. USED DOCUMENTS / MEASURING DEVICES

Used Documents

- | | |
|-------------------------|--|
| - ÖNORM EN 16662-1:2020 | Road vehicles – Supplementary grip devices for tyres of passenger cars and light duty vehicles – Part 1: General safety and performance Requirements
Edition 17.05.2020 |
| - ÖNORM V5117:2021 | Slide protection structures for vehicles of categories M1, N1, O1, O2 Requirements and Tests
Edition 01.05.2021 |
| - BGBl Nr. 399/1967 | KdV 1967 in its last valid version |
| - ETRTO | Standard Manual, European Tyre and Rim Technical Organization |

Used Measuring Devices

- | | |
|---------------------------------|---|
| GPS Measuring Device: | Digital meter for time, length, speed, deceleration and acceleration, Fabr. Racelogic VBOX Mini |
| Tape Measure Class II: | Fabr. Stanley, Accuracy 1,17 m |
| Temperature meter: | Fabr. Testo, Accuracy $\pm 0,1^{\circ}\text{C}$ |
| Length measuring instruments: | Digital caliper Fab. Hogetex, Type Digital Caliper |
| Scale: | Fabr. Kern DE 60 K2N, measuring range 0 – 60 kg, resolution 0.002 kg |
| Measuring stick / spirit level: | Fabr. Hornbach, Type Industrial, accuracy $\pm 0.9\text{ mm}$ |

3. CONDITIONS FOR PERFORMED TESTS

Test Vehicle / Rear wheel drive

Type: BMW Z4
Mass: 1360 kg
Power: 137 kW
Equipment: ABS, ASR

Tires

Summer Tires: Bridgestone; Potenza; 225 / 50 / 16; max load 630 kg; max PSI 51
Winter Tires: Hankook; Evo 2; 225 / 50 / 16; max load 710kg; max PSI 50

Test Vehicle / Front wheel drive

Type: RENAULT Capture
Mass: 1223 kg
Power: 66 kW
Equipment: ABS, ASR

Tires

Summer Tires: Continental Eco 205 / 55 / 17; max load 690kg; max PSI 51
Winter Tires: Michelin Alpin 205 / 60 / 16; max load 630kg; max PSI 36

Reference Chain

Make: Pewag
Type: UZ Super, 12 mm

Driving Conditions / dry road

Date: 07.06.2022
Sea Level: 3.122 m
Road Conditions: Asphalt, dry
Air Temperature: 5°C (Set value <10 °C)

Driving Conditions / icy and snow covered road (summer tires)

Date: 08.06.2022
Sea Level / Place: 3.122 m
Snow Temperature: - 0,9°C (Set value -1 bis -10 °C)
Ice Temperature: - 1,8°C (Set value -1 bis -10°C)
Air Temperature: -3 bis +1,0°C
Road Conditions: strong hardend snow road, approx. 9 cm
thickness of the icy road approx. 3 cm
Measurement Inaccuracy: ± 0,4°C

Laboratory tests

(packaging, labelling, operating instructions, design, dynam. lifting, dimensions)

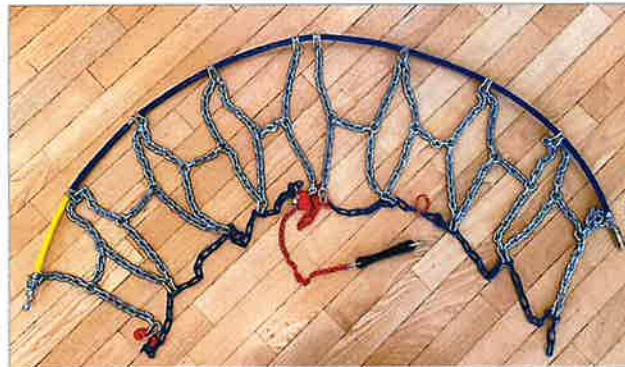
Date: 09.06.2022

4. REQUIREMENTS ACCORDING TO EN STANDARD / TESTS

Pkt. 4.1 General Specifications / Technical Data of the tested Grip Device

Manufacturer:	Jinhua Huanan Auto-Parts Co., Ltd 998 Shifeng Road, Jinhua Zhejiang 321016 China
Production site:	Jinhua Huanan Auto-Parts Co., Ltd 998 Shifeng Road, Jinhua Zhejiang 321016 China
Size marking:	37
Type:	Supplementary grip devices
Name:	KB
Material:	Chain mesh: 20 CrMnTi, gvz Outer chain: FE37B, plasticized
Mass :	3.188 g per pair incl. packaging
Execution:	free spaces on the wheel are <1/8 of the wheel circumference (100% covered)
Adaptability:	very good fit
Seat:	see Pkt. 4.7
Static envelope:	The dimensions are Inside: 16,0 mm (Setpoint < 20 mm) tread: 16,0 mm (Setpoint < 20 mm) Outside: 22,0 mm (Setpoint < 25 mm) Measurement uncertainty: ± 0.10 mm Envelope class: 17,5 mm

Photo:



Pkt. 4.2 Wear Resistance (according to Pkt. 5.2.5.5)

See TÜV Test Report Nr. 19-TAKT-0579/IV of 01.07.2019 / ÖNORM Reg.Nr. N2011008

Results according to TÜV Test Report: fulfilled

Pkt. 4.3 Protection against environmental agents

See TÜV Test Report Nr. 19-TAKT-0579/IV of 01.07.2019 / ÖNORM Reg.Nr. N2011008

Results according to TÜV Test Report: fulfilled

Pkt. 4.4 Dynamic lifting (according to Pkt. 5.2.4)

See TÜV Test Report Nr. 19-TAKT-0579/IV of 01.07.2019 / ÖNORM Reg.Nr. N2011008

Results according to TÜV Test Report: fulfilled

Pkt. 4.5 General behaviour on the road (according to Pkt. 5.2.3)

See TÜV Test Report Nr. 19-TAKT-0579/IV of 01.07.2019 / ÖNORM Reg.Nr. N2011008

Results according to TÜV Test Report: fulfilled

Pkt. 4.6 Examination of the performance limit (high speed, full braking, roundabout) Pkt. 5.2.5

See TÜV Test Report Nr. 19-TAKT-0579/IV of 01.07.2019 / ÖNORM Reg.Nr. N2011008

Results according to TÜV Test Report: fulfilled

Pkt. 4.7 Comparison tests

4.7.1 Comparison test on icy roads Pkt. 5.2.6

a.) Summer tyres

➤ Brake test (according to 5.2.6.3)

The vehicle was accelerated to a speed of 30 km/h and then brought to a standstill.
The average delay was determined.

a.) Summer tires

Measurement	Chain	ABS-braking from 30 km/h Brake distance in m	Delay m/sec ²
Measurement 1	Reference chain	18,40	1,88
Measurement 2	Reference chain	21,00	1,64
Measurement 3	Reference chain	16,90	2,05
Measurement 4	Reference chain	19,70	1,75
Measurement 1	Test chain	19,30	1,80
Measurement 2	Test chain	18,90	1,83
Measurement 3	Test chain	18,80	1,82
Measurement 4	Test chain	19,00	1,83
Measurement 5	Test chain	18,50	1,87
Measurement 6	Test chain	18,70	1,86
Measurement 7	Test chain	19,20	1,78
Measurement 8	Test chain	19,20	1,77
Measurement 1	Reference chain	17,90	1,94
Measurement 2	Reference chain	18,50	1,87
Measurement 3	Reference chain	19,60	1,77
Measurement 4	Reference chain	19,40	1,78
Reference chain Pewag UZ Super		Medium delay	1,83 m/sec ²
		Standard deviation	0,13 m/sec ²
Tested SGD KB		Medium delay	1,82 m/sec ²
		Standard deviation	0,04 m/sec ²
			100 %
			6,84 % (<20%)
			99,22 % (>80%)
			2,00 % (<20%)

➤ Testing of acceleration (according to 5.2.6.4)

The vehicle was accelerated from standstill to cover a distance of 30 m.

Measurement	Chain	Acceleration time in s for distance 0 – 30 m	Acceleration m/sec ²
Measurement 1	Reference chain	8,70	1,03
Measurement 2	Reference chain	8,80	1,13
Measurement 3	Reference chain	9,30	1,02
Measurement 4	Reference chain	9,30	1,05
Measurement 1	Test chain	8,50	1,19
Measurement 2	Test chain	9,10	1,10
Measurement 3	Test chain	9,00	1,11
Measurement 4	Test chain	8,90	1,15
Measurement 5	Test chain	9,50	1,06
Measurement 6	Test chain	9,30	1,10
Measurement 7	Test chain	9,20	1,09
Measurement 8	Test chain	9,20	1,10
Measurement 1	Reference chain	8,90	1,07
Measurement 2	Reference chain	9,10	1,08
Measurement 3	Reference chain	9,40	0,94
Measurement 4	Reference chain	9,30	1,02
Reference chain Pewag UZ Super		Medium acceleration	1,04 m/sec ²
		Standard deviation	0,05 m/sec ²
			100 %
			5,24 % (<20%)
Tested SGD KB		Medium acceleration	1,11 m/sec ²
		Standard deviation	0,04 m/sec ²
			106,65 %(>80%)
			3,94 % (<20%)

Result:

The values correspond to the specifications according to ÖNORM EN 16662-1:2020

Driving tests without ABS showed similar values with uniform acceleration and typing delay.

b.) Winter tires

➤ Brake test (according to 5.2.6.3)

See TÜV Test Report Nr. 19-TAKT-0579/IV of 01.07.2019 / ÖNORM Reg.Nr. N2011008

Results according to TÜV Test Report: fulfilled

➤ Examination Acceleration (according to 5.2.6.4)

See TÜV Test Report Nr. 19-TAKT-0579/IV of 01.07.2019 / ÖNORM Reg.Nr. N2011008

Results according to TÜV Test Report: fulfilled

Pkt. 4.7.2 Comparison test on packed snow-covered road Pkt. 5.2.7

Testing of uphill (according to 5.2.7.3)

The test was carried out on a roadway with packed snow, the required slope was 14 – 15% (setting value > 13%)

Criteria: The test is considered to be passed if the average duration with the test chain is not more than 25% longer than the average duration with the reference chain.

b.) Summer tires

Snow covered road	Test drives	Result
stationary vehicle condition and fastest possible return of 5m in 20 sec.	4 trips with reference chain	according to ÖNORM EN 16662-1
stationary vehicle condition and fastest possible return of 5m in 20 sec.	4 trips with testing chain	according to ÖNORM EN 16662-1

c.) Winter tires

Snow covered road	Test drives	Result
stationary vehicle condition and fastest possible return of 5m in 20 sec.	4 trips with reference chain	according to EN ÖNORM 16662-1
stationary vehicle condition and fastest possible return of 5m in 20 sec.	4 trips with testing chain	according to ÖNORM EN 16662-1

Result:

The values / results with summer and winter tires correspond to the specifications according to ÖNORM EN 16662 -1:2020.

6. MARKING

Pkt. 6.1 Information on the packaging

Information on packaging	Results
Legal person that places the product on the market	fulfilled
Number of the standard	fulfilled
Type of product	fulfilled
Certificate number	fulfilled
Accredited testing body that issued the certificate	fulfilled
List of suitable tyre sizes	fulfilled
Static envelope class according to Table 1	fulfilled
Applicable ONLY for vehicles with ABS	---
Applicable for vehicles with or without ABS	fulfilled

Pkt. 6.2 Marking on the SGD

Information on SGD	Results
Size of the SGD	fulfilled
EN number (ÖNORM EN 16662 -1)	fulfilled
Type of product	fulfilled
If possible, trademarks of the manufacturer	fulfilled

Result:

The information on the packaging and on the anti-slide device (SGD) corresponds to the requirements of ÖNORM EN 16662 -1

7. USE- AND MAINTENANCE BOOKLET

Information in the operator's manual	Result
Indication of maximum speed. 50 km /h	included
Illustrated instructions for assembly, clamping, disassembly	included
Information on storage conditions	included
Information on wear limits	included
General rules of conduct when driving with Anti-slide devices	included
Warning to comply with the prescribed Vehicle manufacturer's requirements	included
Warning on the possible effects of a incorrect clamping procedure	included
Name, address and telephone number of the manufacturer	included

Result:

The information corresponds to the requirements according to ÖNORM EN 16662 -1

II. SUMMARY RESULT OF THE TESTS

Scope of examination acc. to ÖNORM EN 16662-1:2020		Result of the tests	Compliance with the regulations according to the standard
Pkt. 4	Requirements		
4.1	General provisions	complies with the specifications	given
4.2	Resistance to wear	The test on dry road did not show any negative influence to the driving behaviour of the car, nor did any deformations or damage to the SGD occur.	fulfilled Reg.Nr. N2011008
4.3	Protection against environmental influences	No negative effects due to environmental influences	fulfilled Reg.Nr. N2011008
4.4	Dynamic lifting	12 mm at 50 km/h	fulfilled Reg.Nr. N2011008
4.5	General behaviour on the road	no damage or permanent deformations after extreme stress	fulfilled Reg.Nr. N2011008
4.6	Testing the performance limit	The SGD was not pulled from the tread, no damage to the road surface, tire and vehicle	fulfilled Reg.Nr. N2011008
4.7	Comparative tests on icy roads (summer tires)	Defined standard deviation of < 20%, as well as the mean delay of > 80% is observed	fulfilled Reg.Nr. N2011008
	Comparative tests on icy roads (winter tires)	Defined standard deviation of < 20%, as well as the mean delay of > 80% is observed	fulfilled Reg.Nr. N2011008
	Comparative tests on packed snow-covered roads / Uphill test	The ride on a gradient >13% showed a compliance with the deviation of max. 25% to the comparison chain	fulfilled Reg.Nr. N2011008
Pkt. 6	Labeling		
6.1	Information on the packaging	contains all required information	given
6.2	Identification of SGD	contains all required information	given
Pkt. 7	Operation and maintenance manual	contains all required information	given

It can be stated that the supplementary grip device **KB** of the applicant Jinhua Huanan Auto-Parts Co., Ltd complies to the requirements of the ÖNORM EN 16662-1:2020. All reached values are within the specified tolerances.

The scope of application of the supplementary grip device covers vehicles with ABS as well as vehicles without ABS.

ALL REQUIRED CHARACTERISTICS ACCORDING TO ÖNORM EN 16662 - 1:2020 AND THEREFORE ALSO TO THE SPECIFICATIONS OF THE ÖNORM V5117:2021 HAVE BEEN MET.

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Head of the accredited testing body ID# 0288