

## TECHNICAL REPORT

**No. LCTR 1558 001 20**

Inspection concerning

**Reference axle**

performed according to

**Regulation (EU) No. 2015/68 consolidated to  
Regulation (EU) No 2018/828**

**Annex VII, Appendix 1**

**Type: PLZ4012**

**Manufacturer name and address:**

**PALAZOĞLU TARIM ALETLERİ SANAYİ VE TİCARET LİMİTED  
ŞİRKETİ  
YENİ KANDIRA YOLU ÜZERİ 11. KM İZMİT /KOCAELİ/TURKEY**

Type approval previously granted: **Not applicable**

### Contents:

1. General
2. Test details  
Index

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1.

**General**

Manufacturer:

**PALAZOĞLU TARIM ALETLERİ  
SANAYİ VE TİCARET LİMİTED  
ŞİRKETİ**  
YENİ KANDIRA YOLU ÜZERİ 11. KM  
İZMİT / KOCAELİ / TURKEY

Vehicle Type

**PLZ4012**

~~Or component of ESA or STU:~~

2.

**Test details**

	Inspector	Location of test:	Date of receipt of test item:	Date of test:
Main report	Erdal Çınarcı (Type Approval Engineer) Burak Yılmaz (Type Approval Engineer)	YENİ KANDIRA YOLU ÜZERİ 11. KM İZMİT/KOCAELİ/TURKEY	02.12.2019	02.12.2019

2.1.

**Remarks**

2.1.1.

Main report:

Not applicable.





**3. Statement of compliance**

The inspections items and measurements carried out have shown the compliance of the type described in this technical report and the attached Annexes with the requirements of the standard as stated on page 1.

İstanbul-Turkey, January 08, 2020

Luxcontrol s.a.  
Service Homologation-automobile

Erdal Çınarcı  
Ingénieur-Inspecteur

Mustafa Yılmaz  
Ingénieur-Stagiaire

Annexes





Details to the information package, including a summary in chronological order, concerning extensions and/or amendments

Type-approval previously granted: Not applicable

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### **Main Report**

Technical Report No.:	LCTR 1558 001 20	3 Pages
	Index	1 Page

List of Annexes:

A: Test results	6 Pages
B: Information folder	5 Pages


### **Content of the information folder:**

- manufacturer's information document no. PLZ-4012-2015/68 dated 02.01.2020 acc. to EU 2015/68 (page 1 to 5)
-



## **1. Test results:**

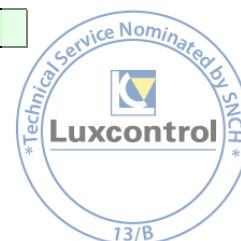
Note: Test report as prescribed in section 3.9 of Annex 7 of EU 2015/68

- 1.1. Axle manufacturer name and address:  
PALAZOĞLU TARIM ALETLERİ SANAYİ VE TİCARET  
LİMİTED ŞİRKETİ  
YENİ KANDIRA YOLU ÜZERİ 11. KM  
İZMİT /KOCAELİ/TURKEY
- 1.1.1. Make of axle manufacturer: 
- 1.2. Brake manufacturer name and address:  
See item 1.1.  
400x120
- 1.2.1. Brake identifier ID2-: 400x120
- 1.2.2. Automatic brake adjustment device:  
- ~~Integrated\*~~  
- Non-integrated\*  
\*Strikethrough, as appropriate.
- 1.3. Manufacturer's information document: PLZ-4012-2015/68

## **2. Test Record**

The following data is recorded for each test:

- 2.1. Test code: LCTR 1558 001 20
- 2.2. Test specimen: Axle with drum brake  
Test variant: S-Cam brake
- 2.2.1. Axle code: See below
- 2.2.1.1. Axle identifier: ID1- PLZ4012
- 2.2.1.2. Identification of tested axle: PLZ4012
- 2.2.1.3. Test axle load (Fe identifier) [daN]: ID3- 10428 daN





2.2.2.	Brake:	See below
2.2.2.1.	Brake identifier:	ID2- 400x120
2.2.2.2.	Identification of tested brake:	400x120
2.2.2.3.	Maximum stroke capability of the brake: <i>Note: Applies to disc brakes only.</i>	NA mm
2.2.2.4.	Effective length of the cam shaft: <i>Note: Applies to drum brakes only.</i>	590 mm
2.2.2.5.	Material variation: <i>Note: As per paragraph 3.8 (m) of this Annex.</i>	NA
2.2.2.6.	Brake: - Drum* - <del>Disc</del> * <i>*Strikethrough, as appropriate.</i>	
2.2.2.6.1.	Actual test mass of drum/ <del>disc</del> : <i>*Strikethrough, as appropriate.</i>	36 kg
2.2.2.6.2.	Nominal external diameter of disc: <i>Note: Applies to disc brakes only.</i>	NA mm
2.2.2.6.3.	Type of cooling of the disc: - <del>Ventilated</del> * - <del>Non-ventilated</del> * <i>*Strikethrough, as appropriate.</i>	
2.2.2.6.4.	Integrated hub: - <del>With</del> * - <del>Without</del> * <i>*Strikethrough, as appropriate.</i>	
2.2.2.6.5.	Disc with integrated drum: - <del>With parking brake function</del> * - <del>Without parking brake function</del> * <i>*Strikethrough, as appropriate.</i> <i>Note: Applies to disc brakes only.</i>	



- 2.2.2.6.6. Geometric relationship between disc friction surfaces and disc mounting:  
NA  
*Examples: One piece, casted, connection on action side.*
- 2.2.2.6.7. Base material: Grey Cast Iron
- 2.2.2.7. Brake:  
- Lining\*  
- Pad\*  
*\*Strikethrough, as appropriate.*
- 2.2.2.7.1. Manufacturer: EREN BALATACILIK SANAYİ VE TİCARET A.Ş.
- 2.2.2.7.2. Make: EREN
- 2.2.2.7.3. Type: EREN M750
- 2.2.2.7.4. Method of attachment: Riveted  
- Lining\*  
- Pad on the brake shoe\*  
- Back plate\*  
*\*Strikethrough, as appropriate.*
- 2.2.2.7.5. 

Thickness of back plate:	--	mm*
Weight of shoes:	5	kg*

  
*\*Strikethrough, as appropriate.*
- 2.2.2.7.6. Base material: Steel (St 37)  
- Back plate\*  
- Brake shoe\*  
*\*Strikethrough, as appropriate.*
- 2.2.3. Automatic brake adjustment device: See below  
*\*Not applicable in the case of integrated automatic brake adjustment device.*
- 2.2.3.1. Manufacturer name and address:  
GEÇGEL METAL DÖKÜM MAK. OTO. SAN. TİC. LTD. ŞTİ.  
Konya Org. San. Bölgesi Büyük Kayacık Mah. Yaylacık Cad.  
Güneştepe Sok. No:5 Selçuklu/Konya/Turkey
- 2.2.3.2. Make: GOS
- 2.2.3.3. Type: 65027



2.2.3.4. Version: NA

2.2.4. Wheel(s): 385/65 R22,5

2.2.4.1. Reference tyre rolling radius ( $R_e$ ) at test axle load ( $F_e$ ): 517 mm

2.2.4.2. Data of the fitted wheel during testing:

Tyre Size	Rim Size	$X_e$ (mm)	$D_e$ (mm)	$E_e$ (mm)	$G_e$ (mm)
385/65 R22,5	11,75x22,5	130	175	32	17

2.2.5. Lever length  $l_e$ : 185 mm

2.2.6. Brake Actuator: See below

2.2.6.1. Manufacturer: ARFESAN A.Ş.

2.2.6.2. Make: ARFESAN

2.2.6.3. Type: 30 "

2.2.6.4. (Test) identification number: BC 0078.0

2.3. Test results: See below

*Note: Corrected to take account of rolling resistance of  $0.02 \cdot F_e$  (in case of vehicles of categories  $R_a$ ) and  $0.01 \cdot F_e$  (in case of vehicles of categories  $R_b$ )*

2.3.1. In the case of vehicles of categories R1, R2, R3a, R4a and R3b where the sum of technically permissible masses per axle does not exceed 10.000 kg, has been subject to the Type I test:

Test Type	0	I	
Annex 7, paragraph:	3.5.1.4	3.5.2.2/3	3.5.2.4
Test speed (km/h)	40	40	40
Brake actuator pressure $p_e$ (kPa)	650	100	650
Braking period (min) or (km)	--	2,33	--
Braking force developed $T_e$ (daN)	6089	730	5051
Brake efficiency $T_e/F_e$	0,58	0,07	0,48
Actuator stroke $s_e$ (mm)	65	--	65
Brake input torque $C_e$ (Nm)	2297	--	2297
Brake input threshold torque $C_{0,e}$ (Nm)	20	--	20





- 2.3.2. In the case of vehicles of categories  
-R3a, R4a  
-R3b where the sum of technically permissible masses per axle does not exceed 10.000 kg.  
-R3b and R4b where the sum of technically permissible masses per axle exceeds 10.000 kg, has been subject to the Type III test:

Test Type	0	III	
Annex 7, paragraph:	3.5.1.2.	3.5.3.1.	3.5.3.2.
Initial test speed (km/h)	60	60	60
Final test speed (km/h)	0	45	0
Brake actuator pressure $p_e$ (kPa)	650	300	650
Number of brake applications	--	20	--
Duration of brake cycle (s)	--	60	--
Braking force developed $T_e$ (daN)	5781	3170	4947
Brake efficiency $T_e/F_e$	0,55	0,30	0,47
Actuator stroke $s_e$ (mm)	65	--	65
Brake input torque $C_e$ (Nm)	2297	--	2297
Brake input threshold torque $C_{0,e}$ (Nm)	20	--	20

- 2.3.3. *This item is to be completed only when the brake has been subject to the test procedure defined in paragraph 4 of Annex 19 to this regulation, to verify the cold performance characteristics of the brake by means of the brake factor (BF).*

2.3.3.1. Brake factor  $B_F$ :

2.3.3.2. Declared threshold torque  $C_{0,dec}$ :  Nm

2.3.4. Performance of the automatic brake adjustment device, if applicable.

2.3.4.1. Free running according to paragraph 3.6.3 of Annex 7:

- Yes\*
- ~~No\*~~

*\*Strikethrough, as appropriate.*



3. **Application Range**

Application range specifies the axle/brake variants that are covered in this test report, by showing which variables are covered by the individual test codes.

NA

4. This test has been carried out and the results reported, in accordance with Annex 7 to Regulation (EU) No. 2015/68

Yes

At the end of the test defined in paragraph 3.6 of Annex 7, the requirements of paragraph 2.2.2.8.1 of Annex I are deemed to be fulfilled.

Yes

*Note: Only to be completed when an automatic brake wear adjustment device is installed.*

5. **Remarks**

The inspection results are only applicable to items, which have been tested.

6. **Test facilities**

Calibration of measuring and test equipment used to carry out the inspections is in accordance with the standard stated on page 1 of this report and with ISO 17025.

**1. GENERAL**

Name and address of axle or vehicle manufacturer

**PALAZOĞLU TARIM ALETLERİ SANAYİ VE  
TİCARET LİMİTED ŞİRKETİ  
YENİ KANDIRA YOLU ÜZERİ 11. KM  
İZMİT/KOCAELİ/TURKEY**

1.1. Commercial Description

PLZ4012

1.2. Category

R3&R4

**2. AXLE DATA**

2.1. Manufacturer (name and address)

**PALAZOĞLU TARIM ALETLERİ SANAYİ VE  
TİCARET LİMİTED ŞİRKETİ  
YENİ KANDIRA YOLU ÜZERİ 11. KM  
İZMİT/KOCAELİ/TURKEY**

2.1.1 Make of manufacturer



2.2. Type / variant

**PLZ4012**

2.3. Axle identifier

ID1- **PLZ4012**

2.4. Test axle load ( $F_e$ )

**10428 daN**

2.5. Wheel and brake data according to the following  
Figures 1A and 1B

Figure 1A

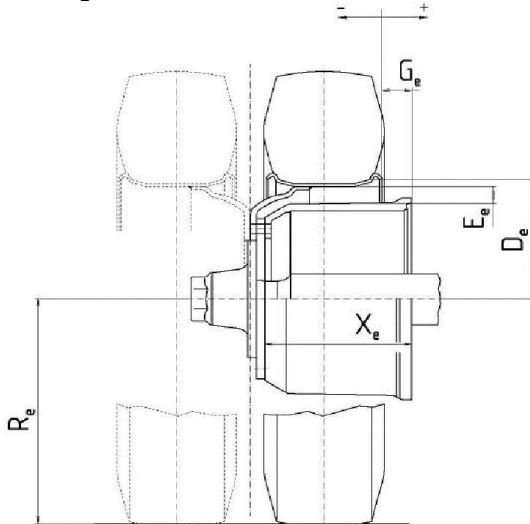
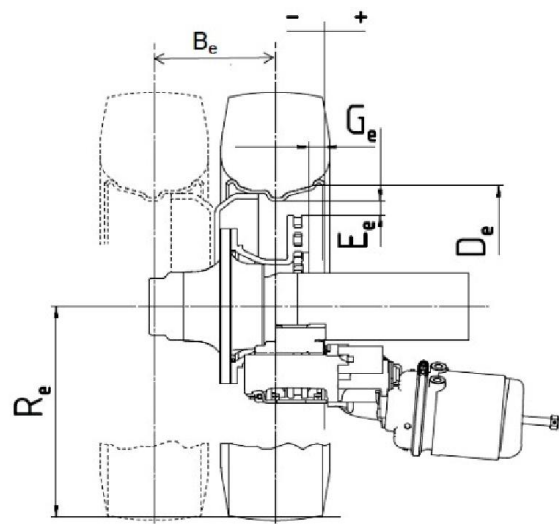


Figure 1B



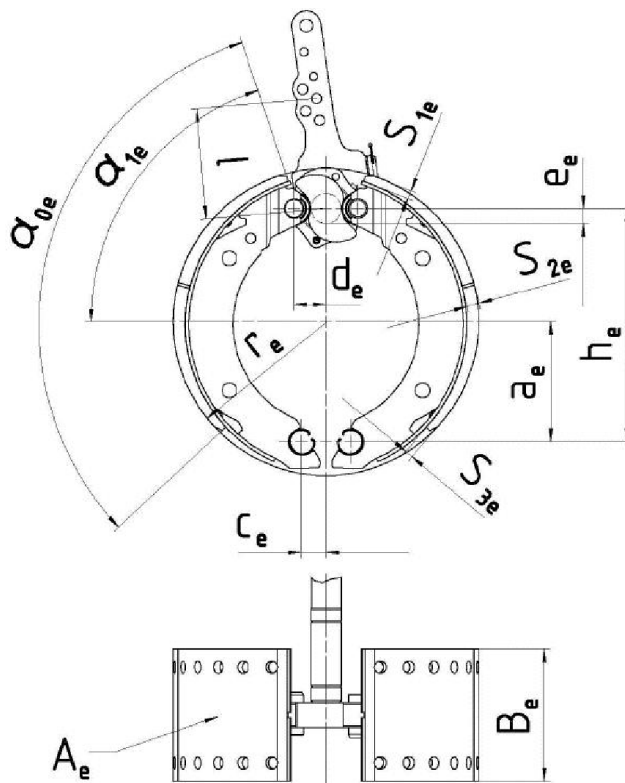
Tyre	Rim	$D_e$ (mm)	$E_e$ (mm)	$G_e$ (mm)	$R_e$ (mm)	$B_e$ (mm)	$X_e$ (mm)
<b>385/65-R22,5</b>	11,75x22,5	175	32	17	517	--	130

### 3. BRAKE

#### 3.1. General Information

- 3.1.1. Name **PALAZOĞLU**
- 3.1.2. Manufacturer (Name and address) **See Item 1.**
- 3.1.3. Type of brake Drum Brake
- 3.1.3.1. Variant **S-Cam Brake**
- 3.1.4. Brake identifier ID2- 400x120
- 3.1.5. Brake data according to the following  
Figures 2A and 2B
- 3.1.6. Brake Factor ( $B_f$ ) 8,73

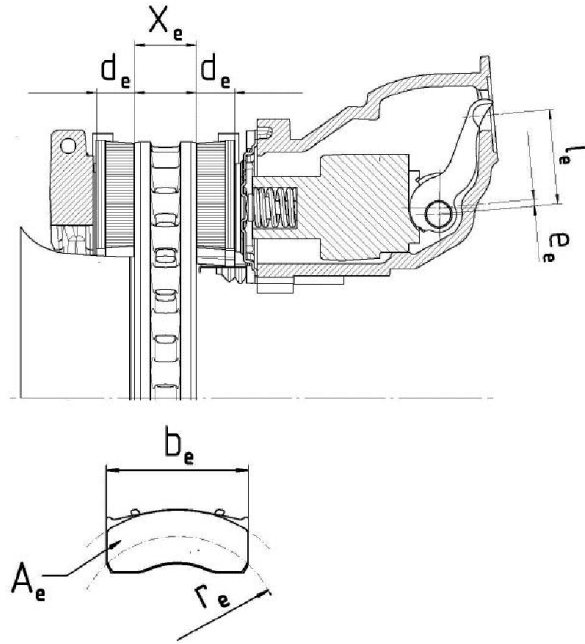
Figure 2A



$a_e$ (mm)	$h_e$ (mm)	$c_e$ (mm)	$d_e$ (mm)	$e_e$ (mm)	$\alpha_{0e}$ (°)	$\alpha_{1e}$ (°)	$B_e$ (mm)	$r_e$ (mm)	$A_e$ (cm <sup>2</sup> )	$S_{1e}$ (mm)	$S_{2e}$ (mm)	$S_{3e}$ (mm)
140	282	58	19	13	150	85	120	199	430	11	15	11

	<b>TRAILER AXLE &amp; BRAKE INFORMATION DOCUMENT</b>		Date	02.01.2020
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Figure 2B



$X_e$ (mm)	$d_e$ (mm)	$e_e$ (mm)	$l_e$ (mm)	$b_e$ (mm)	$A_e$ (cm <sup>2</sup> )	$r_e$ (mm)
--	--	--	--	--	--	--

### 3.2. Drum brake data

3.2.1. Brake adjustment device (external/internal) **External**

3.2.1.1. Manufacturer (Name and address) Geçgel Metal Döküm Mak. Oto. San. Tic. Ltd. Şti.  
Konya Organize San. Bölgesi Büyük Kayacak Mah.  
Yaylacık Cad. Güneştepe Sok. No:5  
Selçuklu/ Konya / Turkey

3.2.1.2. Make GOS

3.2.1.3. Type 65027

3.2.1.4. Version NA

3.2.2. Declared maximum brake input torque ( $C_{max}$ ) 2800 Nm

3.2.3. Mechanical efficiency ( $\eta$ ) 0,9

3.2.4. Declared brake input threshold torque  
( $C_{0,dec}$ ) 20 Nm

3.2.5. Efficiency length of the cam shaft 590 mm

### 3.3. Brake drum


3.3.1. Max. diameter of friction surface (wear limit) 398 mm



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3.3.2.	Base material	Grey Cast Iron
3.3.3.	Declared mass	36 kg
3.3.4.	Nominal mass	36 kg
3.3.5.	Permitted range of the brake drum mass	35-40 kg
3.4.	<i>Brake Lining</i>	
3.4.1.	Manufacturer (Name and address)	EREN BALATACILIK SANAYİ VE TİCARET A.Ş. 13. Sokak No: 6 KOSBİ Kemalpaşa / İzmir / Turkey
3.4.2.	Make	EREN
3.4.3.	Type	EREN M750
3.4.4.	Identification (type identification on lining)	N/A
3.4.5.	Minimum thickness (wear limit)	10 mm
3.4.6.	Method of attaching friction material to brake shoe	Riveted
3.4.6.1.	Worst case of attachment (in the case of more than one)	N/A
3.4.6.2.	Base material of the brake shoe	Steel (St 37)
3.4.6.3.	Range of the weight of the brake shoes (without brake lining)	5 kg
3.5.	<i>Disk brake data</i>	
3.5.1.	Connection type to the axle (axial, radial, integrated etc.)	N/A
3.5.2.	Brake adjustment device (external / integrated)	N/A
3.5.3.	Max. actuation stroke	N/A
3.5.4.	Declared maximum input force ( $Th_{Amax}$ )	N/A
3.5.4.1.	Declared maximum brake input torque ( $C_{max}$ ) $C_{max} = Th_{Amax} * l_e$	N/A
3.5.5.	Friction radius ( $r_e$ )	N/A
3.5.6.	Lever length ( $l_e$ )	N/A
3.5.7.	Input/output ratio (i) ( $l_e/e_e$ )	N/A



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3.5.8.	Mechanical efficiency ( $\eta$ )	N/A
3.5.9.	Declared brake input threshold force ( $Th_{A0,dec}$ )	N/A
3.5.9.1.	$C_{0,dec} = Th_{A0,dec} * l_e$	N/A
3.5.10.	Minimum rotor thickness (wear limit)	N/A
3.6.	<i>Brake disc data</i>	
3.6.1.	Disc type description	N/A
3.6.2.	Connection/mounting to the hub	N/A
3.6.3.	Ventilation (yes/no)	N/A
3.6.4.	Declared mass	N/A
3.6.5.	Nominal mass	N/A
3.6.6.	Declared external diameter	N/A
3.6.7.	Minimum external diameter	N/A
3.6.8.	Inner diameter of friction ring	N/A
3.6.9.	Width of ventilation channel (if appl.)	N/A
3.6.10.	Base material	N/A
3.7.	<i>Brake pad data</i>	
3.7.1.	Manufacturer and address	N/A
3.7.2.	Make	N/A
3.7.3.	Type	N/A
3.7.4.	Identification (type identification on pad back plate)	N/A
3.7.5.	Minimum thickness (wear limit)	N/A
3.7.6.	Method of attaching friction material to pad back plate	N/A
3.7.6.1.	Worst case of attachment (in case of more than one)	N/A

