

**THE NETHERLANDS**
(N E D E R L A N D)**ECE R13-11, Annex 11 – Appendix 3**
Test report as prescribed in Paragraphs 3.9. of Appendix 2 to this Annex**Test report number: RDW 19160125-01**

Base part: ID4- 19160125

Suffix: 01

1. General
 - 1.1. Axle manufacturer (name and address) : BPW Bergische Achsen Kommanditgesellschaft.
D-51674 Wiehl
 - 1.1.1. Make of axle manufacturer : BPW
 - 1.2. Brake manufacturer (name and address) : See 1.1.
 - 1.2.1. Brake identifier : ID2-SN 4212
 - 1.2.2. Automatic brake adjustment device : ~~integrated~~/non-integrated⁽¹⁾
 - 1.3. Manufacturer's Information Document : See item 6.



A.2. Test Record

The following data has to be recorded for each test:

- A.2.1. Test code (see paragraph 3.9.2. of Appendix 2 of this annex) : A.:GA 140424
- A.2.2. Test specimen: (precise identification of the variant tested related to the Manufacturer's Information Document. See also paragraph 3.9.2. of Appendix 2 of this annex)
- A.2.2.1. Axle
- A.2.2.1.1. Axle identifier : ID1-H 85
- A.2.2.1.2. Identification of tested axle : 27.56.741.014
- A.2.2.1.3. Test axle load (F_e identifier) : ID3-8339 daN
- A.2.2.2. Brake
- A.2.2.2.1. Brake identifier : ID2-SN 4212
- A.2.2.2.2. Identification of tested brake : 03 109 73 010
- A.2.2.2.3. Maximum stroke capability of the brake⁽²⁾ : -
- A.2.2.2.4. Effective length of the cam shaft⁽³⁾ : 268 (mm).
- A.2.2.2.5. Material variation as per paragraph 3.8 (m) of Appendix 2 of this annex : N.A.
- A.2.2.2.6. Brake drum/disc⁽¹⁾
- A.2.2.2.6.1. Actual test mass of disc/drum⁽¹⁾ : 36,5 kg
- A.2.2.2.6.2. Nominal external diameter of disc⁽²⁾ : N.A.
- A.2.2.2.6.3. Type of cooling of the disc ventilated/non-ventilated⁽¹⁾ : N.A.
- A.2.2.2.6.4. With or without integrated hub⁽¹⁾ : N.A.
- A.2.2.2.6.5. Disc with integrated drum - with or without parking brake function⁽¹⁾⁽²⁾ : N.A.
- A.2.2.2.6.6. Geometric relationship between disc friction surfaces and disc mounting : N.A.
- A.2.2.2.6.7. Base material : Grey Cast Iron



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A.2.2.2.7. Brake lining or pad ⁽¹⁾

A.2.2.2.7.1. Manufacturer : TMD Friction , Leverkusen.

A.2.2.2.7.2. Make : Textar

A.2.2.2.7.3. Type : T090

A.2.2.2.7.4. Method of attachment of the lining/~~pad~~
on the brake shoe/~~back plate~~ ⁽¹⁾ : Riveted.

A.2.2.2.7.5. Thickness of back plate, weight of shoes or other describing information (Manufacturer's Information Document) ⁽¹⁾ : See information document.

A.2.2.2.7.6. Base material of brake shoe/back plate ⁽¹⁾ : Steel.

A.2.2.3. Automatic brake adjustment device (not applicable in the case of integrated automatic brake adjustment device) ⁽¹⁾

A.2.2.3.1. Manufacturer (name and address) : See 1.1.

A.2.2.3.2. Make : BPW

A.2.2.3.3. Type : AGS

A.2.2.3.4. Version : 0

A.2.2.4. Wheel(s) (dimensions see Figures 1A and 1B in Appendix 5 of this annex)

A.2.2.4.1. Reference tyre rolling radius (R_e) at test axle load (F_e) : 494 (mm)

A.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)
10 R 22,5	22,5 x 6,75	197	571,0	Min. 15	Min - 43

A.2.2.5. Lever length l_e : 165 (mm)

A.2.2.6. Brake actuator

A.2.2.6.1. Manufacturer : BPW Bergische Achsen

A.2.2.6.2. Make : BPW

A.2.2.6.3. Type : 05.444.16...(30")
(1977*p-556)

A.2.2.6.4. (Test) identification number : BC 0069.1



A.2.3. Test results (corrected to take account of rolling resistance of 0.01 - F_e)

A.2.3.2. In the case of vehicles of categories O₄

Test type:		0	III	
Annex 11, Appendix 2, paragraph:		3.5.1.2.	3.5.3.1.	3.5.3.2.
Test speed initial	km/h	60	60	60
Test speed final	km/h	0	30	0
Brake actuator pressure p_e	kPa	488	-	485
Number of brake applications	-	-	20	-
Duration of braking cycle	s	-	60	-
Brake force developed T_e	N	49029	24713	40954
Brake efficiency T_e/F_e	-	0,59	0,286	0,49
Actuator stroke S_e	mm	50,87	-	58,4
Brake input torque C_e	Nm	1501	-	1490
Brake input threshold torque $C_{0,e}$	Nm	50	-	50



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B.2. Test Record

The following data has to be recorded for each test:

- B.2.1. Test code (see paragraph 3.9.2. of Appendix 2 of this annex) : B :GA 140527
- B.2.2. Test specimen: (precise identification of the variant tested related to the Manufacturer's Information Document. See also paragraph 3.9.2. of Appendix 2 of this annex)
- B.2.2.1. Axle
- B.2.2.1.1. Axle identifier : ID1- H 85
- B.2.2.1.2. Identification of tested axle : 27.56.741.014
- B.2.2.1.3. Test axle load (F_e identifier) : ID3-8339 daN
- B.2.2.2. Brake
- B.2.2.2.1. Brake identifier : ID2-SN4212
- B.2.2.2.2. Identification of tested brake : 03 109 73 010
- B.2.2.2.3. Maximum stroke capability of the brake⁽²⁾ : -
- B.2.2.2.4. Effective length of the cam shaft⁽³⁾ : 755 (mm).
- B.2.2.2.5. Material variation as per paragraph 3.8 (m) of Appendix 2 of this annex : N.A.
- B.2.2.2.6. Brake drum/disc⁽¹⁾
- B.2.2.2.6.1. Actual test mass of disc/drum⁽¹⁾ : 36,5 kg
- B.2.2.2.6.2. Nominal external diameter of disc⁽²⁾ : N.A.
- B.2.2.2.6.3. Type of cooling of the disc ventilated/ non-ventilated⁽¹⁾ : N.A.
- B.2.2.2.6.4. With or without integrated hub⁽¹⁾ : N.A.
- B.2.2.2.6.5. Disc with integrated drum - with or without parking brake function⁽¹⁾⁽²⁾ : N.A.
- B.2.2.2.6.6. Geometric relationship between disc friction surfaces and disc mounting : N.A.
- B.2.2.2.6.7. Base material : Grey Cast Iron



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B.2.2.2.7. Brake lining or pad ⁽¹⁾

B.2.2.2.7.1. Manufacturer : TMD Friction , Leverkusen.

B.2.2.2.7.2. Make : Textar

B.2.2.2.7.3. Type : T090

B.2.2.2.7.4. Method of attachment of the lining/~~pad~~
on the brake shoe/~~back plate~~ ⁽¹⁾ : Riveted.

B.2.2.2.7.5. Thickness of back plate, weight of shoes or other describing information (Manufacturer's Information Document) ⁽¹⁾ : See information document.

B.2.2.2.7.6. Base material of brake shoe/back plate ⁽¹⁾ : Steel.

B.2.2.3. Automatic brake adjustment device (not applicable in the case of integrated automatic brake adjustment device) ⁽¹⁾

B.2.2.3.1. Manufacturer (name and address) : See 1.1.

B.2.2.3.2. Make : BPW

B.2.2.3.3. Type : AGS

B.2.2.3.4. Version : 2

B.2.2.4. Wheel(s) (dimensions see Figures 1A and 1B in Appendix 5 of this annex)

B.2.2.4.1. Reference tyre rolling radius (R_e) at test axle load (F_e) : 494 (mm)

B.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)
10 R 22,5	22,5 x 6,75	197	571,0	Min. 15	Min - 43

B.2.2.5. Lever length l_e : 165 (mm)

B.2.2.6. Brake actuator

B.2.2.6.1. Manufacturer : BPW Bergische Achsen

B.2.2.6.2. Make : BPW

B.2.2.6.3. Type : 05.444.16...(30")
(1977*p-556)

B.2.2.6.4. (Test) identification number : BC 0069.1



B.2.3. Test results (corrected to take account of rolling resistance of 0.01 - F_e)

B.2.3.2. In the case of vehicles of categories O_4

Test type:		0	III	
Annex 11, Appendix 2, paragraph:		3.5.1.2.	3.5.3.1.	3.5.3.2.
Test speed initial	km/h	60	60	60
Test speed final	km/h	0	30	0
Brake actuator pressure p_e	kPa	454	-	454
Number of brake applications	-	-	20	-
Duration of braking cycle	s	-	60	-
Brake force developed T_e	N	52032	24141	39086
Brake efficiency T_e/F_e	-	0,62	0,289	0,468
Actuator stroke S_e	mm	53,2	-	64,3
Brake input torque C_e	Nm	1389	-	1389
Brake input threshold torque $C_{0,e}$	Nm	50	-	50



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C.2. Test Record

The following data has to be recorded for each test:

- C.2.1. Test code (see paragraph 3.9.2. of Appendix 2 of this annex) : B :AA 181030
- C.2.2. Test specimen: (precise identification of the variant tested related to the Manufacturer's Information Document. See also paragraph 3.9.2. of Appendix 2 of this annex)
- C.2.2.1. Axle
- C.2.2.1.1. Axle identifier : ID1- H 85
- C.2.2.1.2. Identification of tested axle : 27.56.741.014
- C.2.2.1.3. Test axle load (F_e identifier) : ID3-8339 daN
- C.2.2.2. Brake
- C.2.2.2.1. Brake identifier : ID2-SN4212
- C.2.2.2.2. Identification of tested brake : 03 109 73 010
- C.2.2.2.3. Maximum stroke capability of the brake⁽²⁾ : -
- C.2.2.2.4. Effective length of the cam shaft⁽³⁾ : 478 (mm).
- C.2.2.2.5. Material variation as per paragraph 3.8 (m) of Appendix 2 of this annex : N.A.
- C.2.2.2.6. Brake drum/disc⁽¹⁾
- C.2.2.2.6.1. Actual test mass of disc/drum⁽¹⁾ : 36,5 kg
- C.2.2.2.6.2. Nominal external diameter of disc⁽²⁾ : N.A.
- C.2.2.2.6.3. Type of cooling of the disc ventilated/ non-ventilated⁽¹⁾ : N.A.
- C.2.2.2.6.4. With or without integrated hub⁽¹⁾ : N.A.
- C.2.2.2.6.5. Disc with integrated drum - with or without parking brake function⁽¹⁾⁽²⁾ : N.A.
- C.2.2.2.6.6. Geometric relationship between disc friction surfaces and disc mounting : N.A.
- C.2.2.2.6.7. Base material : Grey Cast Iron



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C.2.2.2.7. Brake lining or pad ⁽¹⁾

C.2.2.2.7.1. Manufacturer : TMD Friction , Leverkusen.

C.2.2.2.7.2. Make : Textar

C.2.2.2.7.3. Type : T090

C.2.2.2.7.4. Method of attachment of the lining/~~pad~~
on the brake shoe/~~back plate~~ ⁽¹⁾ : Riveted.

C.2.2.2.7.5. Thickness of back plate, weight of shoes or other describing information (Manufacturer's Information Document) ⁽¹⁾ : See information document.

C.2.2.2.7.6. Base material of brake shoe/back plate ⁽¹⁾ : Steel.

C.2.2.3. Automatic brake adjustment device (not applicable in the case of integrated automatic brake adjustment device) ⁽¹⁾

C.2.2.3.1. Manufacturer (name and address) : See 1.1.

C.2.2.3.2. Make : BPW

C.2.2.3.3. Type : AGS

C.2.2.3.4. Version : 0

C.2.2.4. Wheel(s) (dimensions see Figures 1A and 1B in Appendix 5 of this annex)

C.2.2.4.1. Reference tyre rolling radius (R_e) at test axle load (F_e) : 494 (mm)

C.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)
10 R 22,5	22,5 x 6,75	197	571,0	Min. 15	Min - 43

C.2.2.5. Lever length l_e : 165 (mm)

C.2.2.6. Brake actuator

C.2.2.6.1. Manufacturer : BPW Bergische Achsen

C.2.2.6.2. Make : BPW

C.2.2.6.3. Type : 05.444.16...(30")
(1977*p-556)

C.2.2.6.4. (Test) identification number : BC 0069.1



C.2.3. Test results (corrected to take account of rolling resistance of 0.01 - F_e)

C.2.3.2. In the case of vehicles of categories O_4

Test type:		0	III	
Annex 11, Appendix 2, paragraph:		3.5.1.2.	3.5.3.1.	3.5.3.2.
Test speed initial	km/h	60	60	60
Test speed final	km/h	0	30	0
Brake actuator pressure p_e	kPa	438	-	436
Number of brake applications	-	-	20	-
Duration of braking cycle	s	-	60	-
Brake force developed T_e	N	53902	24850	47074
Brake efficiency T_e/F_e	-	0,65	0,298	0,56
Actuator stroke S_e	mm	47,2	-	55,73
Brake input torque C_e	Nm	1338	-	1331
Brake input threshold torque $C_{0,e}$	Nm	50	-	50



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 (B_F).

2.3.3.1. Brake factor (B_F) : 9,0

2.3.3.2. Declared threshold torque $C_{0,dec}$: 50 Nm

2.3.4. Performance of the automatic adjustment device (if applicable)

2.3.4.1. Free running according to paragraph 3.6.3. of Annex 11, Appendix 2 : yes/~~no~~⁽¹⁾

3. Application range

This 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.

4. This test has been carried out and the results reported in accordance with Appendix 2 to Annex 11 and where appropriate paragraph 4. of Annex 19 to Regulation number 13 as last amended by the 10 series of amendments.

At the end of the test defined in paragraph 3.6. of Annex 11, Appendix 2⁽⁴⁾ the requirements of paragraph 5.2.2.8.1. of Regulation number 13 were deemed to be fulfilled/~~not fulfilled~~⁽¹⁾



Technical Service ⁽⁵⁾ carrying out the test : RDW
Europaweg 205
P.O. Box 777
2700 AT Zoetermeer
The Netherlands

Signed :



W.R. Hartman

Date : 13 November 2018

Approval authority ⁽⁵⁾ : RDW
Europaweg 205
P.O. Box 777
2700 AT Zoetermeer
The Netherlands

Signed :



Ing A.M. Boekestein

Date : 13 November 2018

⁽¹⁾ Strike out what does not apply.

⁽²⁾ Applies to disc brakes only.

⁽³⁾ Applies to drum brakes only.

⁽²⁾ Applies to disc brakes only.

⁽³⁾ Applies to drum brakes only.

⁽²⁾ Applies to disc brakes only.

⁽³⁾ Applies to drum brakes only.

⁽⁴⁾ Only to be completed when an automatic brake wear adjustment device is installed.

⁽⁵⁾ To be signed by different persons even when the Technical Service and Approval Authority are the same or alternatively, a separate approval Authority authorization is issued with the report.

Information Document BPW –SN4212.00

TRAILER AXLE AND BRAKE INFORMATION DOCUMENT WITH RESPECT TO THE ALTERNATIVE TYPE I AND TYPE III PROCEDURE

(according to ECE R 13, Annex 11 – Appendix 5)

Date	Revision	Position	Amendment of terms
10.06.2014	00		
06.11.2018	01	3.2.1.	Add effective length of the cam shaft

1. GENERAL

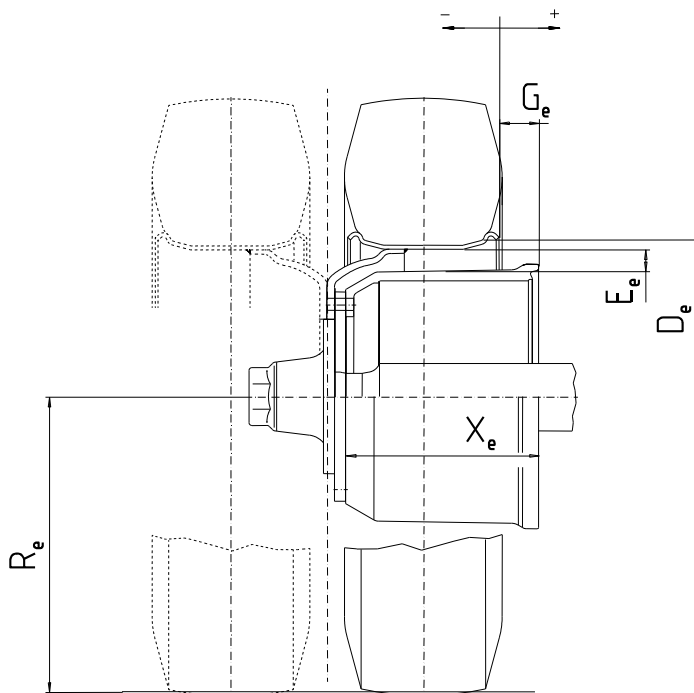
1.1. Name and address of axle or vehicle manufacturer:

BPW Bergische Achsen KG
Ohlerhammer
D-51674 Wiehl

2. AXLE DATA

- 2.1. Manufacturer (name and address) see 1.1.
 2.2. Type/variant H
 2.3. Axle identifier ID1- H 85
 2.4. Test axle load (F_e) ID3- ID 8339 daN
 2.5. Wheel and brake data according to the following figure 1A:

FIGURE 1A

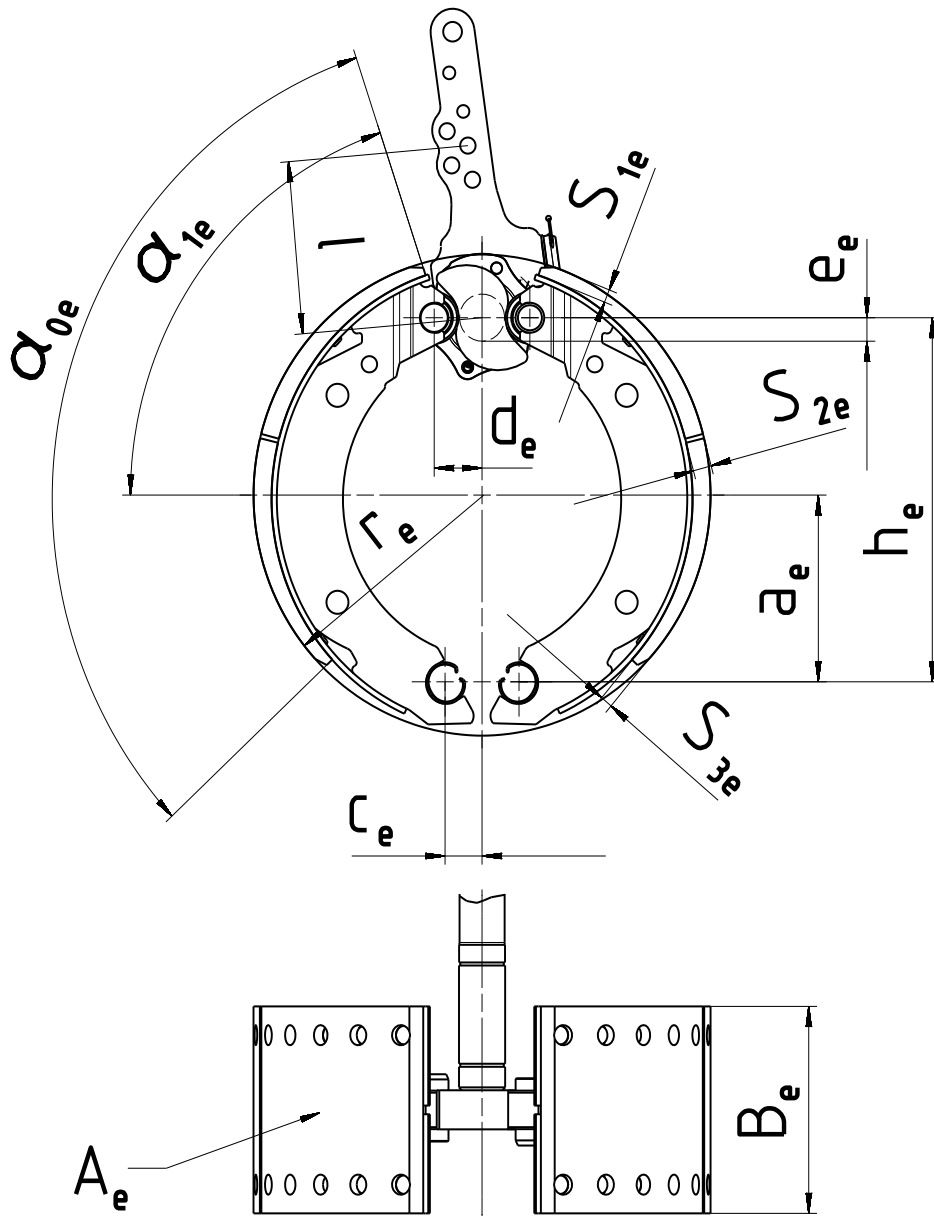


Permitted range:

D (mm)	E (mm)	G (mm)	R (mm)	X (mm)
min. 571	min. 15	min. -43	min. 0,8 * 494	min. 197

3. BRAKE
- 3.1. General information
- 3.1.1. Make BPW
- 3.1.2. Manufacturer (name and address) see 1.1.
- 3.1.3. Type of brake (e.g. drum / disc) Drum Brake
- 3.1.3.1. Variant (e.g. S-cam, single wedge etc.) S-cam brake
- 3.1.4. Brake identifier ID2- SN 4212
- 3.1.5. Brake data according to the following figure 2A:

FIGURE 2A



a_e (mm)	h_e (mm)	c_e (mm)	d_e (mm)	e_e (mm)	α_{0e} (°)	α_{1e} (°)	B_e (mm)	r_e (mm)	A_e (cm ²)	S_{1e} (mm)	S_{2e} (mm)	S_{3e} (mm)
163,7	317,7	33	42	14	114	70,5	120	210	894	13	18	13

- 3.1.6. Brake factor B_F 9

3.2. Drum brake data

3.2.1. Brake adjustment device (external/integrated)external

3.2.1.1. Alternative	3.2.1.2. Manufacturer and address	3.2.1.3. Make	3.2.1.4. Type	3.2.1.5. Version	3.2.1.6. Effective length of the cam shaft	3.2.1.7 Brake lining	3.2.1.8 Test code
A	see 1.1.	BPW	AGS-	0	max. 268 mm	Textar T090	GA140424
B	see 1.1.	BPW	AGS-	2	max. 755 mm	Textar T090	GA140527
<u>C</u>	<u>See 1.1.</u>	<u>BPW</u>	<u>AGS-</u>	<u>0</u>	<u>max. 478 mm</u>	<u>Textar</u> <u>T090</u>	<u>AA181030</u>

3.2.2. Declared maximum brake input torque C_{max} 2450 Nm

for calculation ($p_m = 650$ kPa) 2000 Nm

3.2.3. Mechanical efficiency $\eta =$ 0,8

3.2.4. Declared brake input threshold torque $C_{0,dec}$ 50 Nm

3.2.5. Effective length of the cam shaft see 3.2.1.6.

3.3. Brake drum

3.3.1. Max diameter of friction surface (wear limit)	3.3.2. Base material:	3.3.3. Declared mass:	3.3.4. Nominal mass:	3.3.5. Brake drum	3.3.6. Identification Code
425,5 mm	cast iron	36,8 kg	38 kg	without hub	BPW 03.10x.xx.xx.x*

3.4. Brake lining

3.4.1. Manufacturer and address  TMD Friction Services GmbH

Schlebuscher Str. 99

D-51381 Leverkusen

3.4.2. Make Textar

3.4.3. Type T090

3.4.4. Identification (type identification on lining) Textar T090

3.4.5. Minimum thickness (wear limit) 6 mm

3.4.6. Method of attaching friction material to brake shoe revited

3.4.6.1. Worst case of attachment (in the case of more than one)..... not applicable

3.4.6.2. Range of the weight of one brake shoe (without linings and rollers)..... min. 5,1 kg

3.4.6.3. Base material of the brake shoes steel

* The different numbers characterized in this information document with "x" are representing versions of the drum, whose modifications have however no influence on the function and effect regarding the tests carried out in accordance to ECE-Regulation No. 13 and are not part of the identification code.