

Test Report

No. TDB 0550 dated 25.04.2000

for application of Annex VII Directive 71/320/EEC

1 IDENTIFICATION

1.1 Axle

Manufacturer: BPW Bergische Achsen
Kommanditgesellschaft
D-51674 Wiehl

Make: BPW

Type: PS 13

Model: -

Technically permissible axle load P_e ¹⁾: 1350 daN

1.2 Brake

Manufacturer: See 1.1

Make: BPW

Type: N 2504-3

Model: -

Technically permissible camshaft
input torque $C_{max,e}$: 330 Nm
(for calculation: 250 Nm at 6,5 bar)

Brake drum - Internal diameter: 250 mm

- Mass: See appendix 1 dated 30.10.1998

- Material: Cast iron (grey cast iron)

Brake lining - Manufacturer: Federal-Mogul Friction Products GmbH
D-51709 Marienheide

- Make,- Type: FERODO BERAL, 1548

- Identification: Type indication at front

- Width: 40 mm

- Thickness: 5 mm

- Surface area F_e : 199 cm² | 211 cm²

- Method of attachment: Rivited | adhesive

Brake geometry: See appendix 1 dated 30.10.1998
See appendix 2 dated 04.06.1996

1.3 Wheel (Single)

Rim diameter D_e : See appendix 1 dated 30.10.1998

Dimensions: See appendix 1 dated 30.10.1998

¹⁾ See sheet 3/3

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RWTÜV

Manufacturer : BPW
Type of axle : PS 13

1.4 Tyres

Dynamic rolling radius R_e
at reference load P_e :

See appendix 1 dated 30.10.1998

1.5 Actuation

Brake actuator - Manufacturer: WABCO
- Type: Piston cylinder
- Model: 3" (921 002 000 0)
Lever length l_e : 150 mm

2 RECORD OF TEST RESULTS ²⁾

(corrected to take account of rolling resistance $\hat{=} 0,01P_e$)

2.1 In the case of vehicles of categories O₂ and O₃

Test type:		0	I	
Annex VII, Appendix 1, point:		3.5.1.2	3.5.2.2/3	3.5.2.4
Test speed	km/h	40	40	40
Brake actuator pressure p_e	bar	2,2	-	2,2
Braking time	min	-	2,55	-
Brake force developed T_e	daN	781	105	598
Brake efficiency T_e/P_e	-	0,58	0,08	0,44
Actuator stroke s_e	mm	52	-	58
Camshaft input torque C_e	Nm	150	-	150
$C_{o,e}$	Nm	25	-	25

2.2 In the case of vehicles of category O₄: Not applicable

3 NAME OF TECHNICAL SERVICE CONDUCTING THE TEST

RWTÜV Fahrzeug GmbH
Technischer Dienst für Bremsanlagen
D-45307 Essen

4 DATE OF TEST: 21.06.1996

²⁾ See sheet 3/3



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RWTÜV

Manufacturer : BPW
Type of axle : PS 13

- 5 This test has been carried out and the result reported in accordance with Directive 71/320/EEC as last amended by Directive 98/12/EC and Annex VII, Appendix 1.

Essen, 25.04.2000



Dipl.-Ing. Kaesler



LABORATORY FOR VEHICLE TECHNOLOGY
Testing Laboratory for Braking Systems
according to Directive 71/320/EEC in the
version of Directive 98/12/EC

- 6 **APPROVAL AUTHORITY, if different from the technical service**

Flensburg, 24. MAI 2000

i. A.



- 7 **TEST DOCUMENTS**

- / Appendix 1: Dimensions brake drum/wheel/tyre
- / Appendix 2: Brake geometry

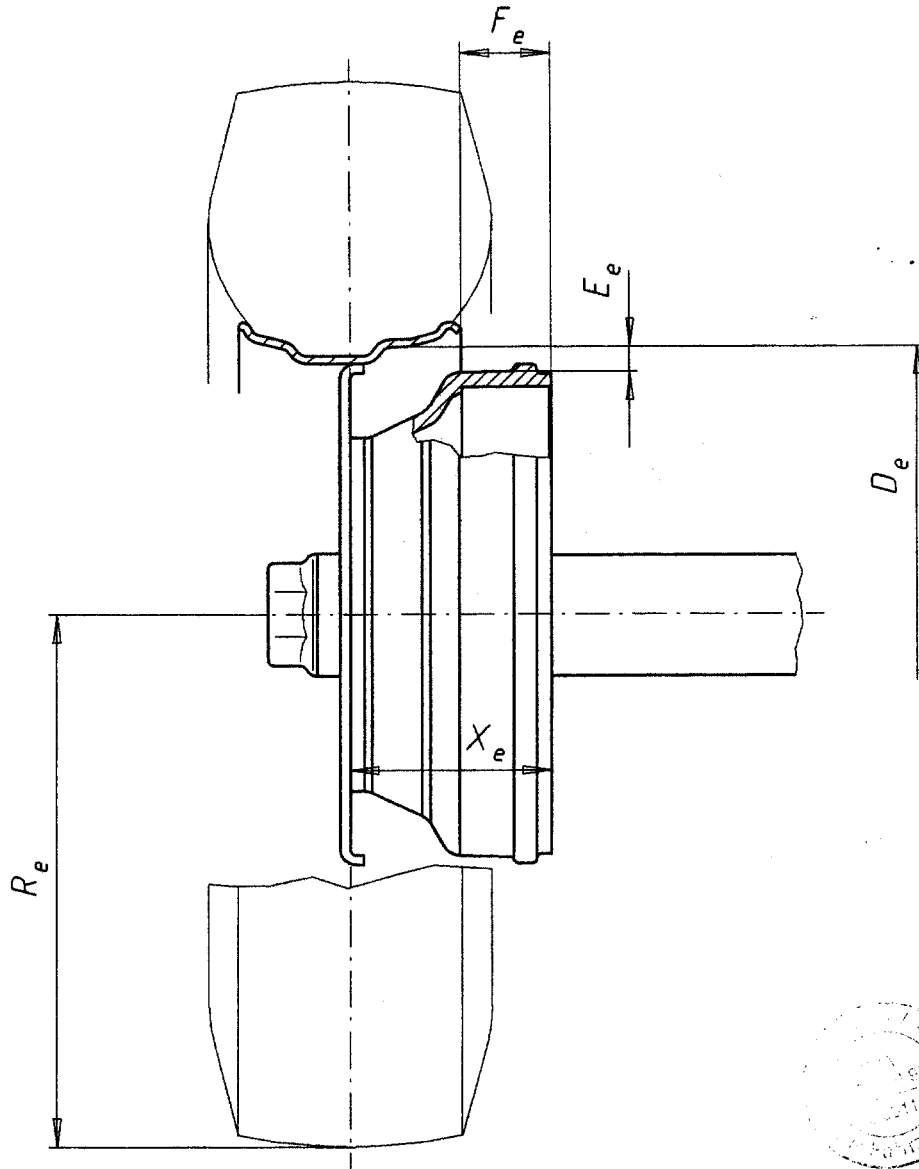
1) Calculation with $g = 10 \text{ m/s}^2$

2) Rolling road dynamometer test; $F_e = 211 \text{ cm}^2$, $R_e = 332 \text{ mm}$, $X_e = 68,5 \text{ mm}$



Abt. EZ
Tag 30.10.98
Bearb. Schöler

BPW BERGISCHE ACHSEN Kommanditgesellschaft D-51674 Wiehl



* with integrated hub

Drum- width X_e (mm)	mass (kg) *	Axle load P_e (da N)	Tyre	Rim	R_e (mm)	D_e (mm)	E_e (mm)	F_e (mm)
≥ 68,5	7,7	1350	6,50 R 16	4.50 E×16	361	406	55	-2
≥ 84	9,9	1350	6,50 R 16	4.50 E×16	361	406	55	+13
≥ 68,5	7,7	1350	8,75 R 16,5	6.75×16,5	361	419	60	-33
≥ 84	9,9	1350	8,75 R 16,5	6.75×16,5	361	419	60	-17
≥ 68,5	7,7	1350	175 R 14	5J×14	303	356	30	-6
≥ 84	9,9	1350	175 R 14	5J×14	303	356	30	+9
≥ 68,5	7,7	1350	6,70 R 13	5J×13	318	330	18	-6
≥ 84	9,9	1350	6,70 R 13	5J×13	318	330	18	+9
≥ 68,5	7,7	1350	185 R 14	5 1/2 J×14	313	356	30	-12
≥ 84	9,9	1350	185 R 14	5 1/2 J×14	313	356	30	+3
≥ 68,5	7,7	1350	205 R 14C	6J×14	332	356	30	-18
≥ 84	9,9	1350	205 R 14C	6J×14	332	356	30	-3

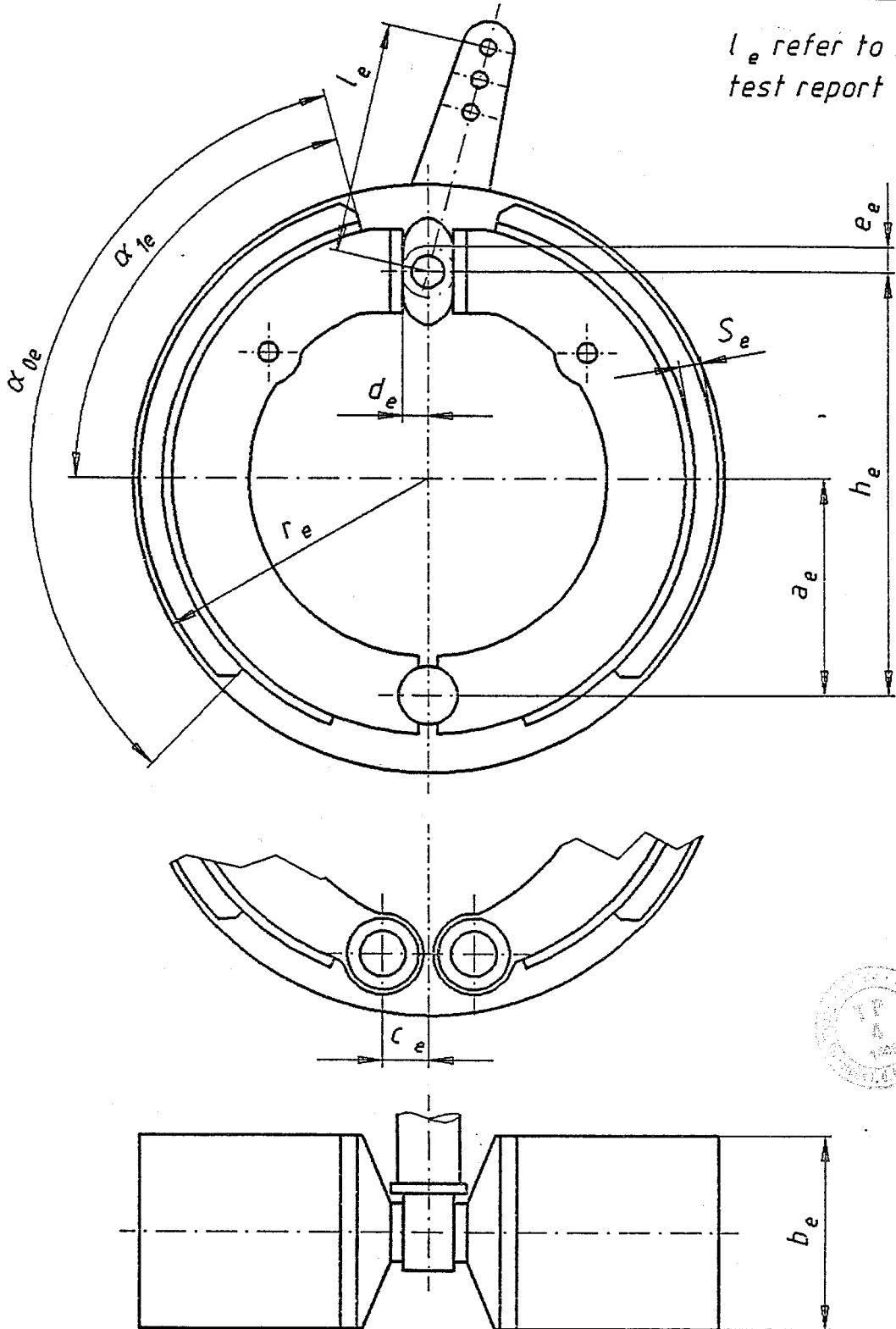
Ersatz für
Ersetzt durch



Abt. EE
Tag 04.06.96
Bearb. Schuster

BPW BERGISCHE ACHSEN Kommanditgesellschaft D-51674 WIEHL

l_e refer to No.15. of
test report



All dimensions except α_{0e}, α_{1e} and F_e in mm. F_e = braking surface per brake (cm²).

Type of brake	a_e	h_e	c_e	d_e	e_e	α_{0e}	α_{1e}	b_e	r_e	F_e		S_e
										rivited	adhesive	
N 2504-3	97,5	198	0	9	10	125°	60°	40	125	199	211	5
N 3006-3	122	242	0	11	10	115°	57°30'	60	150	320	345	5
N 3108-3	120	243	0	17	10,5	120°	57°	80	155	423	---	8
N 4008-3	160	325	30	17	13	115°	57°30'	80	200	548	---	8
N 4012-3	160	325	30	17	13	116°	58°	120	200	884	---	8

Ersatz für
Ersetzt durch