

Test Report

No. TDB 0421 dated 28.04.2000

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 80
Model: -
Technically permissible axle load P_e ¹⁾: 9000 daN

1.2 Brake

Manufacturer: See 1.1
Make: BPW
Type: N 4012-3
Model: -
Technically permissible camshaft
input torque $C_{max,e}$: 2000 Nm
(for calculation: 1650 Nm at 6,5 bar)

Brake drum - Internal diameter: 400 mm
- Mass: 33 kg
- Material: Cast iron (grey cast iron)

Brake lining - Manufacturer: Federal-Mogul Friction Products GmbH
D-51709 Marienheide
- Make,- Type: FERODO BERAL, 1517
- Identification: Type indication at front
- Width: 120 mm
- Thickness: 8 mm
- Surface area F_e : 884 cm²
- Method of attachment: Rivited

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 80

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: GRAU
- Type: Diaphragm brake actuator
- Model: 30 (120 361 101)
Lever length l_e : 180 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	4,0	-	4,0
Braking time	min	-	2,55	-
Brake force developed T_e	daN	5169	630	3847
Brake efficiency T_e/P_e	-	0,57	0,07	0,43
Actuator stroke s_e	mm	45	-	64
Camshaft input torque C_e	Nm	1330	-	1330
$C_{0,e}$	Nm	30	-	30

2.2 In the case of vehicles of category O₄

Test type:		0	III	
Annex VII, Appendix 1, point:		3.5.1.2	3.5.3.1.3	3.5.3.2
Test speed	km/h	60	30	60
Brake actuator pressure p_e	bar	4,0	-	4,0
Number of brake applications	-	-	20	-
Duration of braking cycle	s	-	60	-
Brake force developed T_e	daN	4915	540	3734
Brake efficiency T_e/P_e	-	0,55	0,06	0,41
Actuator stroke s_e	mm	45	-	63
Camshaft input torque C_e	Nm	1330	-	1330
$C_{0,e}$	Nm	30	-	30

²⁾ See sheet 3/3



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RWTÜV

Manufacturer : BPW
Type of axle : PS 80

3 NAME OF TECHNICAL SERVICE CONDUCTING THE TEST

RWTÜV Fahrzeug GmbH
Technischer Dienst für Bremsanlagen
D-45307 Essen

4 DATE OF TEST: 18.11.1996

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, 28.04.2000



Dipl.-Ing. Kaesler

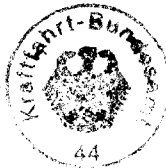


LABORATORY FOR VEHICLE TECHNOLOGY
Testing Laboratory for Braking Systems
according to Directive 71/320/EEC in the
version of Directive 98/12/EC

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 (sheet 2)
- / Appendix 2: Brake geometry

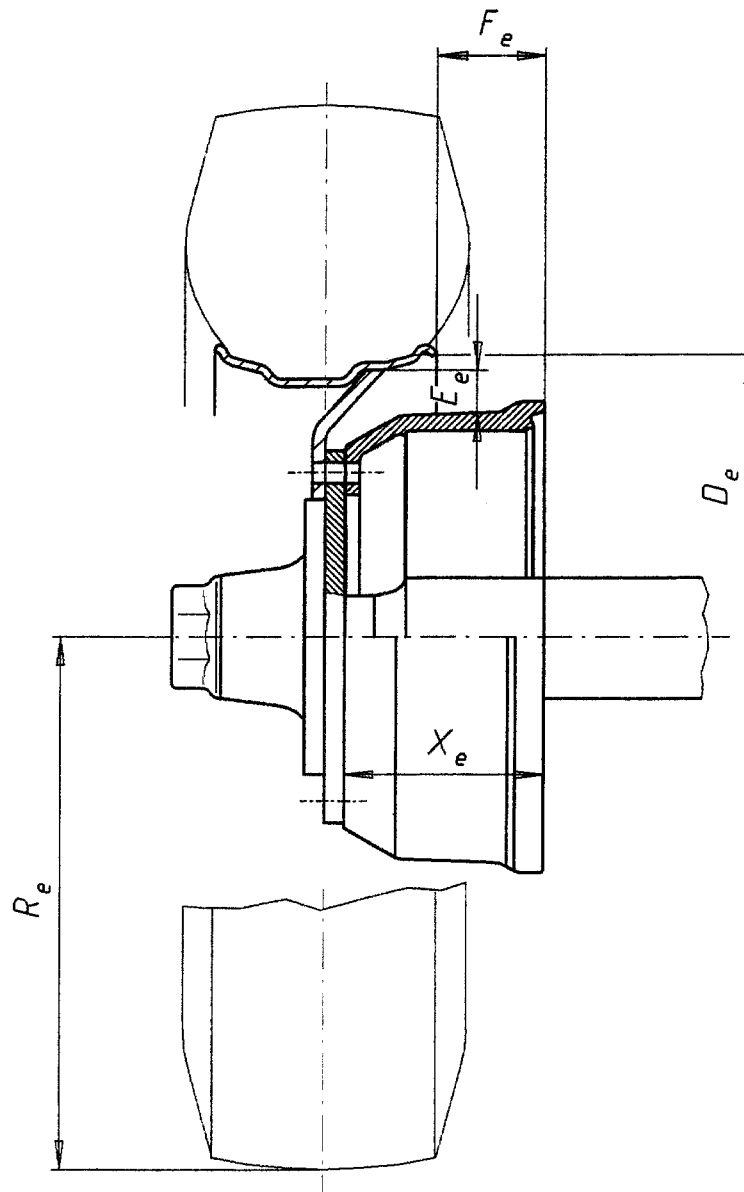
1) Calculation with $g = 10 \text{ m/s}^2$

2) Rolling road dynamometer test; $R_e = 631 \text{ mm}$



Abt. EZ
Tag 30.10.98
Bearb. Schöler

BPW BERGISCHE AXHSEN Kommanditgesellschaft D-51674 Wiehl

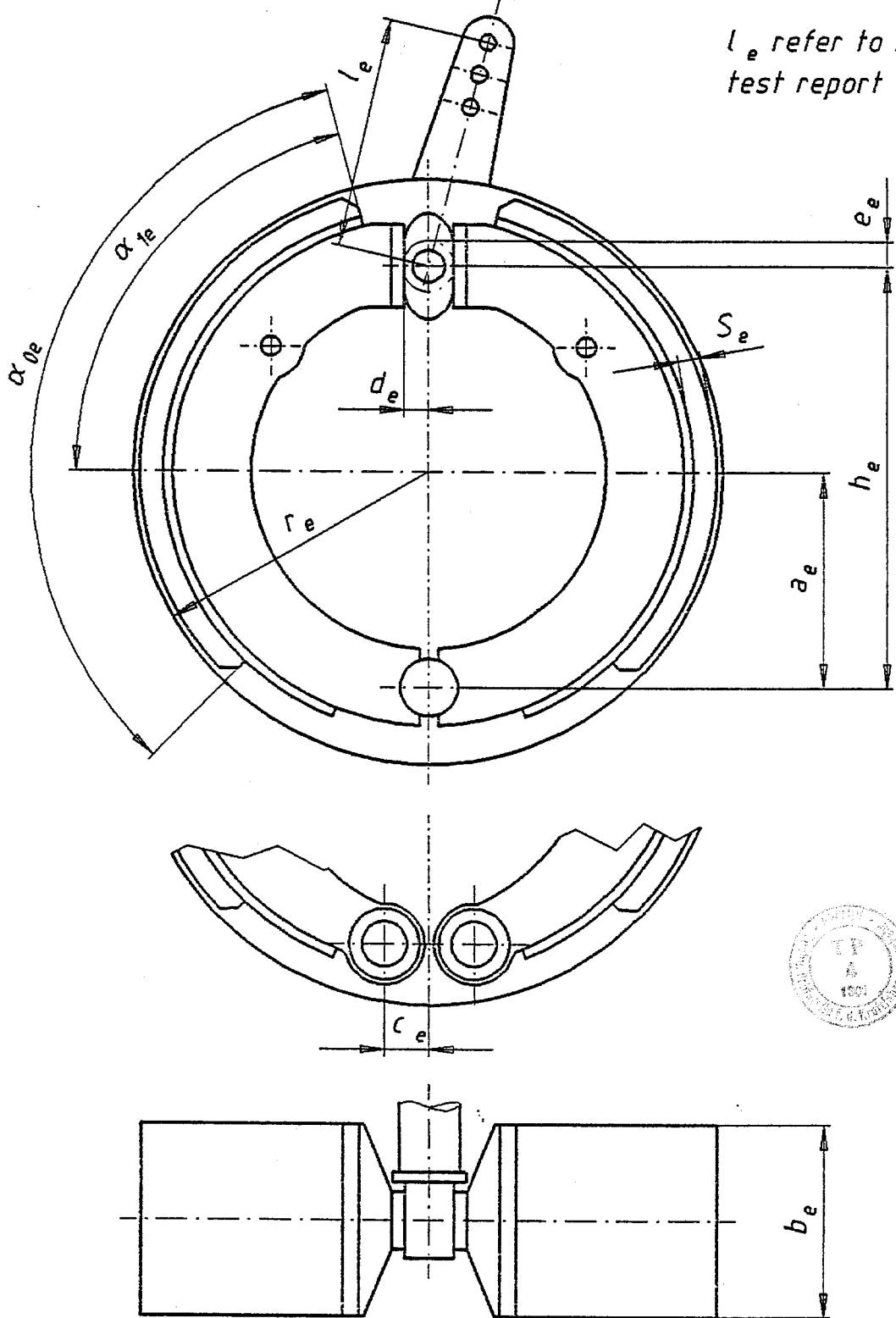


Drum- width X_e (mm)	mass (kg)	Axle load P_e (da N)	Tyre	Rim	R_e (mm)	D_e (mm)	E_e (mm)	F_e (mm)
≥ 165	33	9000	600/55 - 26,5	20,00×26,5	631	673	79	-96
≥ 165	33	9000	600/50 - 22,5	20,00×22,5	546	572	50	-96
≥ 165	33	9000	700/50 - 26,5	20,00×26,5	630	673	79	-96
≥ 165	33	9000	445/65 R 22,5	22,5×14,00	560	572	50	-24
≥ 165	33	9000	385/65 R 22,5	22,5×11,75	519	572	50	-4

Ersatz für
Ersetzt durch



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 (cm^2).

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

Abt. EE
Tag 04.06.96
Bearb. Schuster

BPW BERGISCHE ACHSEN Kommanditgesellschaft D-51674 WIEHL

Ersatz für
Ersetzt durch