

# Test Report

No. TDB 0364 dated 26.04.2000

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 50

Model: -

Technically permissible axle load  $P_e$ <sup>1)</sup>: 5000 daN

### 1.2 Brake

Manufacturer: See 1.1

Make: BPW

Type: N 3108-3

Model: -

Technically permissible camshaft  
input torque  $C_{max,e}$ : 1350 Nm  
(for calculation: 1000 Nm at 6,5 bar)

Brake drum - Internal diameter: 310 mm

- Mass: 14 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: 80 mm

- Thickness: 8 mm

- Surface area: 443 cm<sup>2</sup>

- Method of attachment: Rivited

Brake geometry: See appendix 1 dated 30.10.1998  
See appendix 2 dated 07.06.1996

### 1.3 Wheel (Single)

Rim diameter  $D_r$ : See appendix 1 dated 30.10.1998

Dimensions: See appendix 1 dated 30.10.1998

<sup>1)</sup> See sheet 3/3

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**RWTÜV**

Manufacturer : BPW  
Type of axle : PS 50

#### 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: Diaphragm brake actuator  
- Model: 20 (423 105 900 0)  
Lever length  $l_e$ : 150 mm

### 2 RECORD OF TEST RESULTS <sup>2)</sup>

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

#### 2.1 In the case of vehicles of categories O<sub>2</sub> and O<sub>3</sub>

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	4,6	-	4,6
Braking time	min	-	2,55	-
Brake force developed $T_e$	daN	3084	354	2927
Brake efficiency $T_e/P_e$	-	0,62	0,07	0,59
Actuator stroke $s_e$	mm	38	-	63
Camshaft input torque $C_e$	Nm	804	-	804
$C_{0,e}$	Nm	30	-	30

#### 2.2 In the case of vehicles of category O<sub>4</sub>: Not applicable

### 3 NAME OF TECHNICAL SERVICE CONDUCTING THE TEST

RWTÜV Fahrzeug GmbH  
Technischer Dienst für Bremsanlagen  
D-45307 Essen

### 4 DATE OF TEST: 06.04.1989

<sup>2)</sup> See sheet 3/3



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Date : 26.04.2000

**RWTÜV**

Manufacturer : BPW  
Type of axle : PS 50

- 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, 26.04.2000



Dipl.-Ing. Kaesler

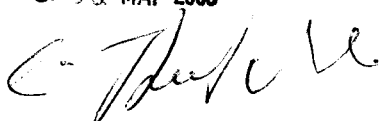


LABORATORY FOR VEHICLE TECHNOLOGY  
Testing Laboratory for Braking Systems  
according to Directive 71/320/EEC in the  
version of Directive 98/12/EC

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

Flensburg, 03 MAI 2000

i. A.



- 7 **TEST DOCUMENTS**

- / Appendix 1: Dimensions brake drum/wheel/tyre (sheet 3 and 7)
- / Appendix 2: Brake geometry

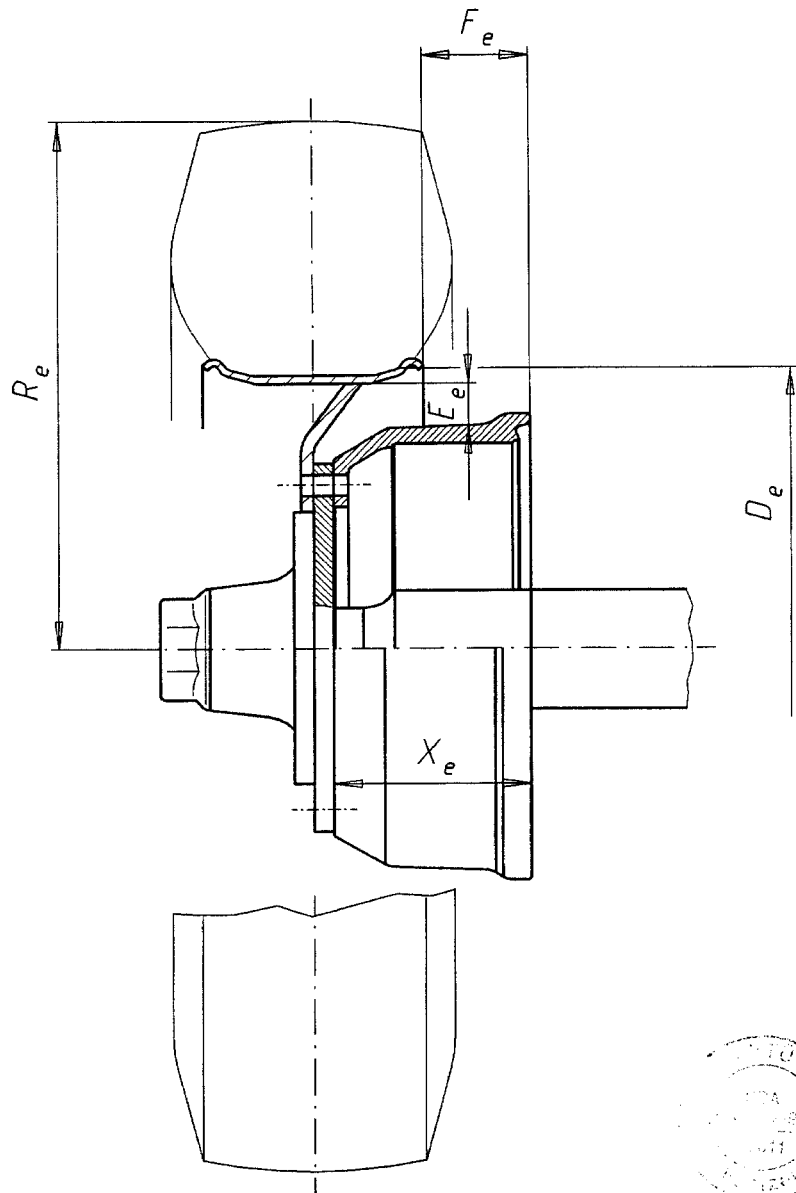
1) Calculation with  $g = 10 \text{ m/s}^2$

2) Rolling road dynamometer test;  $R_e = 471 \text{ mm}$



Abt. EZ  
Tag 30.10.98  
Bearb. Schöler

BPW BERGISCHE ACHSEN Kommanditgesellschaft D-51674 Wiehl



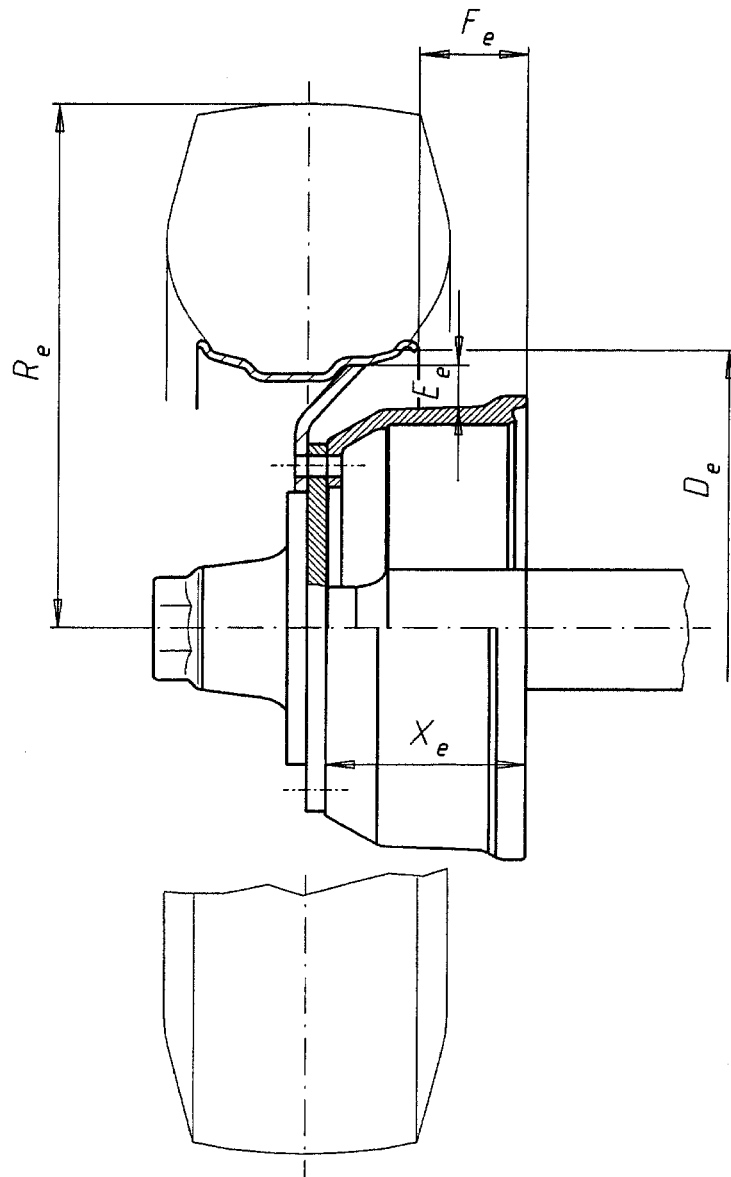
Drum-width $X_e$ (mm)	mass (kg)	Axle load $P_e$ (da N)	Tyre	Rim	$R_e$	$D_e$	$E_e$	$F_e$
					(mm)	(mm)	(mm)	(mm)
$\geq 112$	14	5000	8,25 R 20	6,5 - 20	471	508	78	20

Ersatz für  
Ersetzt durch



Abt. EZ  
Tag 30.10.98  
Bearb. Schöler

BPW BERGISCHE ACHSEN Kommanditgesellschaft D-51674 Wiehl



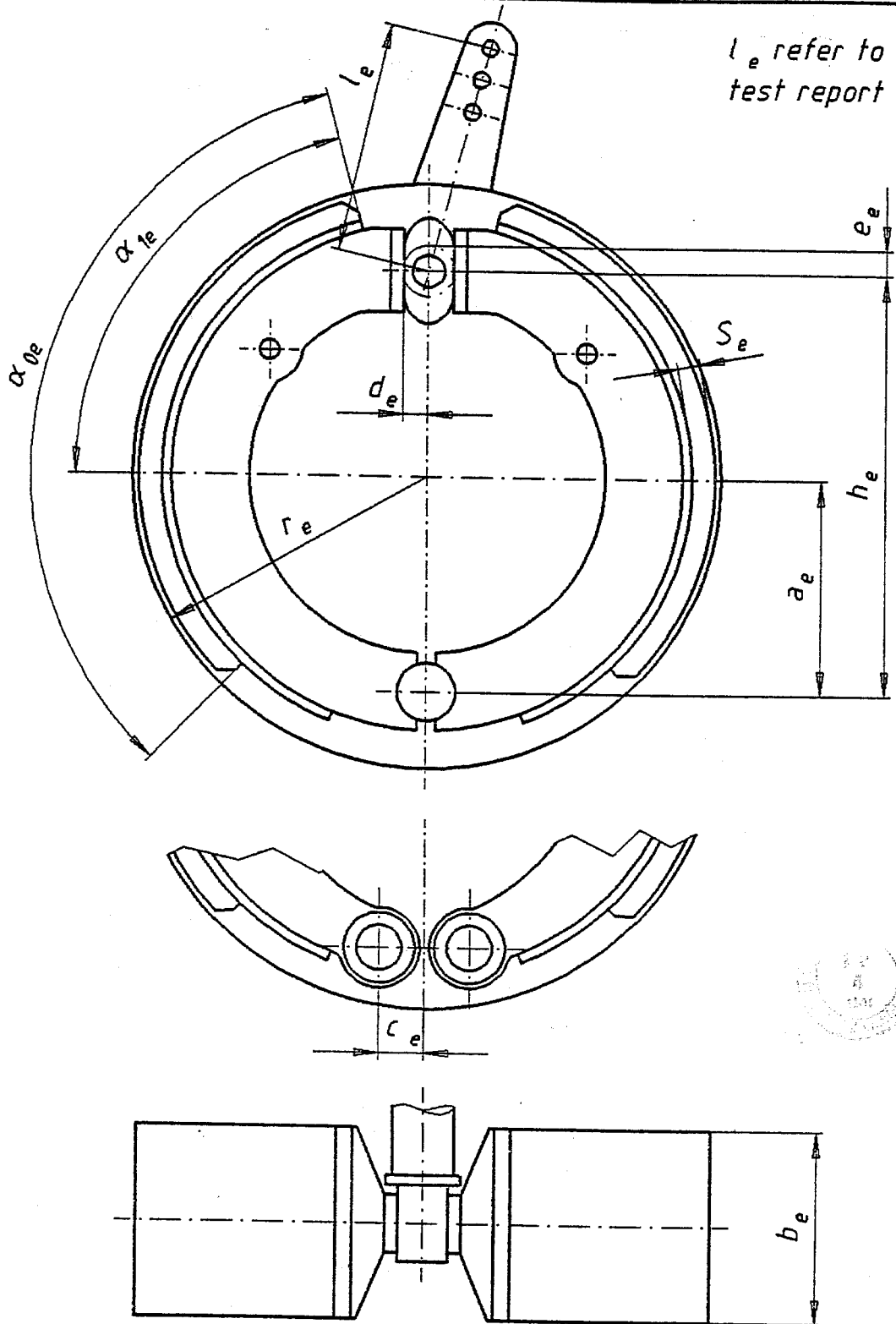
Drum- width $X_e$ (mm)	mass (kg)	Axle load $P_e$ (da N)	Tyre	Rim	$R_e$	$D_e$	$E_e$	$F_e$
					(mm)	(mm)	(mm)	(mm)
≥ 112	14	5000	19,0/45 - 17	16,00×17	386	432	28	-86
≥ 112	14	5000	555/45 - 17	16,00×17	464	432	28	-86
≥ 112	14	5000	325/65 R 18	W 11×18	422	462	42	-17
≥ 112	14	5000	7,50 R 16	5,50 F - 16	389	406	25	+46
≥ 112	14	5000	285/70 R 19,5	19,5×8,25	431	495	43	-5
≥ 112	14	5000	275/70 R 22,5	22,5×7,50	470	571	95	+4
≥ 112	14	5000	235/75 R 17,5	17,5×7,50	387	444	22	+4

Ersatz für  
Ersetzt durch



Abt. EE  
Tag 07.06.96  
Bearb. Schuster

BPW BERGISCHE ACHSEN Kommanditgesellschaft D-51674 WIEHL



$l_e$  refer to No.15. of test report

All dimensions except  $\alpha_{0e}$ ,  $\alpha_{1e}$  and  $F_e$  in mm.  $F_e$  = braking surface per brake ( $cm^2$ ).

Type of brake	$a_e$	$h_e$	$c_e$	$d_e$	$e_e$	$\alpha_{0e}$	$\alpha_{1e}$	$b_e$	$r_e$	$F_e$		$S_e$
										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