

No: SAF SBK2243K01 disc brake 36101814 & 36110303

Date: 14.04.2025

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Information document: SAF SBK2243K01 disc_brake 36101814 & 36110303
ECE Regulation 13 Amendment 13 Supplement 2.

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Revision		
Request for extension/revision/correction	N/A	
Reason for extension/revision/correction	N/A	



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THE NETHERLANDS

TEST REPORT

Concerning the braking system of certain categories of trailers corresponding the ECE Regulation number 13.13 Supplement 2.

Test report number : RDW-13R-0153263

0.1. Make : Koegel

0.2. Type : port 20 Tankplex

0.3. Category of vehicle : O3 and O4

0.4. Name and address of the manufacturer : SAF-HOLLAND GmbH
Hauptstraße 26
63856 Bessenbach
Germany

Applicability : All results in this report relate only to the tested system/component, that is assessed as representative for the vehicle type to be approved.
See calculation 1009478 / 1009479 / 1009480 test report 36101814
36110303, + brake schedule 05.400.002-11

Statement of conformity : The test(s) has (have) been carried out in accordance with the requirements laid down in the above-mentioned Regulation and have been supervised by RDW as a category B technical service.

The Brake type , mentioned in this report , has been tested conform the above mentioned requirements and the results can be found in this testreport.

Test(s) supervised on : 10-13 March 2025

Test(s) supervised by : W.Hartman

On behalf of the head of RDW Technical Service:



Inspector W.Hartman
Zoetermeer (NL), 16 April 2025



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Test report number: RDW-13R-0153263

Reason for testing

New brake pad type SAF SBK2243K01

Worst case description

N.A.

General information of representative test object

Make and type of the vehicle : Koegel port 20 Tankplex
Vehicle category : O3 and O4
VIN : WK0S0002400221421

Full trailer/Semi trailer ⁽¹⁾ Wheelbase (E_r) 3.770 – 4.425 – 5.130 mm
Axles:
Make and type (ID1) SAF SBS2243 Code (ID4) 361-103-03
Brakes:
Make and type (ID2) SAF SBK 2243K01 Lining make and type JURID 539 / KB 5111
Bogie:
Make and type SAF Intradisc
Tyres:
Tyre size 385/65 R22,5
Tyre pressure 9.0 10²kPa Load Index 160 J
Suspension:
Type Mechanical/pneumatic ⁽¹⁾
Make SAF air
Dimensions Ø 360

General test information

Inspected by : W.Hartman
Place : Lelystad
Date : 10-13 March 2025



Used test equipment

Item	Required accuracy	Identification
Scale	± 10 kg	OPS 08
Manometer	± 1 % of 1600 kPa	MAN 03/07/08 BID
Pressure sensor	± 2.5 % of 1000 kPa	-
Speed measurement equipment	± 1 %	GPS 41
Deceleration meter	± 0.3 m/s ²	GPS 41
Pedal-force meter	± 2 daN	-
Temperature meter	± 10 °C	-
Tyre-pressure meter	± 20 kPa	BVA 16
Force measurement equipment	± 3 %	KRA 31
Dynamometer		-
Time measurement test equipment	± 0.2 %	-
Angle meter		-
Reaction-time measurement test equipment	± 0.02 sec	TMS KEMPF
Brake test bench		-
Torque measurement test equipment		-
Dynamic fatigue test equipment		-
Length measurement equipment	Class II	-
Amplifier		-
Filter		-

All used equipment meets the requirements laid down in ISO 17025:2017 and critical equipment has been subject to functional checks, in accordance with the RDW-policy set forth in document AI 3-001 1.

Remarks



Environmental information

Date	10-03-2025	11-03-2025	12-03-2025	13-03-2025	
Road surface	Asphalt	Asphalt	Asphalt	Asphalt	
Weather condition	Dry/sunny	Dry	Dry	wet	
Temperature	13 ° C	6 ° C	7 ° C	0 ° C	
Wind direction	E	WNW	W	SSW	
Wind speed	1,8 m/s	2,5 m/s	1,7 m/s	0,8 m/s	
Ambient pressure	1003 Hpa	1003 Hpa	999 Hpa	999 Hpa	
Relative humidity	59 %	81 %	62 %	93 %	

Static measurements:

Maximum allowed weights (mass):					
king pin	16.000	kg			
Axle 1	10.000	kg			
Axle 2	10.000	kg			
Axle 3	10.000	kg			
Total	46.000	kg			
Brake schedule	05.400.002-11				
Brake cylinders			Brake levers		
Axle number 1	20	inch	Axle number 1	76	mm
Axle number 2	20/24	inch	Axle number 2	76	mm
Axle number 3	20/24	inch	Axle number 3	76	mm



ANNEX 4
Braking tests and performance of braking systems

3 axle vehicle KB 5111 lining + greencoating not bedded – in

3.1. Performance of braking systems of vehicles of category O										
Command line pressure (10 ² kPa)		Brake cylinder pressure (10 ² kPa)		Deceleration combination (m/s ²)		Diagram number		Deceleration calculated for trailer (%)		Condition vehicle laden/unladen
2,0	2,0	1,7	1,7	0,97	1,22	-	-	14,2	16,8	laden
3,0	3,0	2,7	2,7	1,42	2,04	-	-	21,0	30,4	
4,0	4,0	3,7	3,7	2,03	2,6	-	-	30,3	39,0	
5,0	5,0	4,7	4,7	2,85	3,28	-	-	42,7	49,3	
6,0	6,0	5,8	5,8	3,19	3,10	-	-	47,9	46,6	
-	-	1,2	1,6	1,77	2,4	-	-	46,1	63,1	unladen
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 15%;">3.1.3.2.</div> <div style="width: 70%;"> If the trailer is fitted with a compressed air braking system, the pressure in the control line shall not exceed 650 kPa and the pressure in the supply line shall not exceed 700 kPa during the brake test. The test speed is 60 km/h. </div> <div style="width: 15%; text-align: right;"> : pass/fail </div> </div>										
1.4.4 Calculation factor for deceleration										
Mass of the combination		44.755		kg						
Unladen weight under axles		4.985		kg		Un Laden		: 2,65		
Maximum weight under axles		30.000		kg		laden		: 1,49		
Rolling resistance value		1		%						
Remarks: N/A										
Weights of combination under test conditions										
Unladen			Laden			Tractor unit solo				
Axle 1	5.510	kg	Axle 1	6.475	kg	Axle 1	-	kg		
Axle 2	2.765	kg	Axle 2	7.070	kg	Axle 2	-	kg		
Axle 3	1.680	kg	Axle 3	9.790	kg	Total	7.200	kg		
Axle 4	1.690	kg	Axle 4	10.865	kg					
Axle 5	1.615	kg	Axle 5	10.555	kg					
Total	13.260	kg	Total	44.755	kg					



3 Axle vehicle Lining JURID 539

3.1. Performance of braking systems of vehicles of category O										
Command line pressure (10 ² kPa)		Brake cylinder pressure (10 ² kPa)		Deceleration combination (m/s ²)		Diagram number		Deceleration calculated for trailer (%)		Condition vehicle laden/unladen
2,0	2,0	1,7	1,7	0,89	1,19	-	-	13,0	17,5	laden
3,0	3,0	2,7	2,7	1,47	1,98	-	-	21,8	29,5	
4,0	4,0	3,7	3,7	2,45	2,76	-	-	36,7	41,4	
5,0	5,0	4,7	4,7	3,09	3,27	-	-	46,4	49,1	
6,0	6,0	5,7	5,7	3,35	3,42	-	-	50,3	51,4	
-	-	1,2	1,7	1,77	2,4	-	-	46,1	63,1	unladen
3.1.3.2. If the trailer is fitted with a compressed air braking system, the pressure in the control line shall not exceed 650 kPa and the pressure in the supply line shall not exceed 700 kPa during the brake test. The test speed is 60 km/h.										
: pass/fail										
1.4.4 Calculation factor for deceleration										
Mass of the combination		44.755		kg						
Unladen weight under axles		-		kg		Un Laden		:		
Maximum weight under axles		30.000		kg		laden		:		
Rolling resistance value		1		%						
Remarks: N/A										
Weights of combination under test conditions										
Unladen			Laden			Tractor unit solo				
Axle 1	-	kg	Axle 1	6.475	kg	Axle 1	-	kg		
Axle 2	-	kg	Axle 2	7.070	kg	Axle 2	-	kg		
Axle 3	-	kg	Axle 3	9.790	kg	Total	7.200	kg		
Axle 4	-	kg	Axle 4	10.865	kg					
Axle 5	-	kg	Axle 5	10.555	kg					
Total	-	kg	Total	44.755	kg					



2 axle vehicle lining KB5111

3.1. Performance of braking systems of vehicles of category O											
Command line pressure (10 ² kPa)		Brake cylinder pressure (10 ² kPa)		Deceleration combination (m/s ²)		Diagram number		Deceleration calculated for trailer (%)		Condition vehicle laden/unladen	
2,0	2,0	1,7	1,8	1,25	1,25	-	-	19,0	19,0	laden	
3,0		2,8		1,89	-	-	-	29,1	-		
4,0	4,0	3,7	3,72	2,76	2,72	-	-	42,7	42,1		
5,0	5,0	4,7	4,7	3,38	3,26	-	-	52,5	50,6		
-	-	2,5	2,0	2,26	2,19	-	-	54,5	52,8	unladen	
3.1.3.2. If the trailer is fitted with a compressed air braking system, the pressure in the control line shall not exceed 650 kPa and the pressure in the supply line shall not exceed 700 kPa during the brake test. The test speed is 60 km/h.											
										: pass/fail	
1.4.4 Calculation factor for deceleration											
Mass of the combination				30.790	kg						
Unladen weight under axles				5.505	kg	Un Laden	:	2,43			
Maximum weight under axles				20.000	kg	laden	:	1,54			
Rolling resistance value				1	%						
Remarks: N/A											
Weights of combination under test conditions											
Unladen			Laden			Tractor unit solo					
Axle 1	5.310	kg	Axle 1	5.675	kg	Axle 1	-	kg			
Axle 2	2.575	kg	Axle 2	4.130	kg	Axle 2	-	kg			
Axle 3	2.690	kg	Axle 3	10.190	kg	Total	7.200	kg			
Axle 4	2.815	kg	Axle 4	10.795	kg						
Axle 5	lifted	kg	Axle 5	lifted	kg						
Total	13.390	kg	Total	30.790	kg						



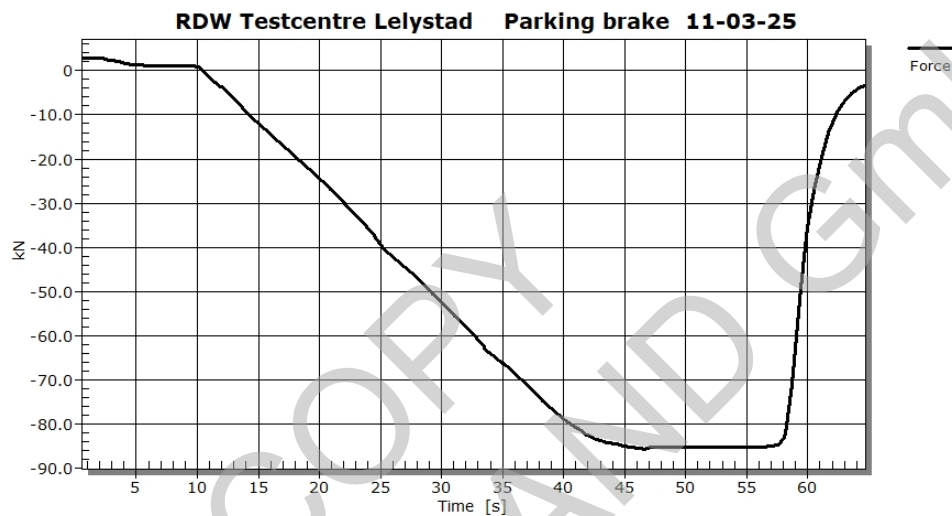
1 axle vehicle lining KB5111

3.1. Performance of braking systems of vehicles of category O											
Command line pressure (10 ² kPa)		Brake cylinder pressure (10 ² kPa)		Deceleration combination (m/s ²)		Diagram number		Deceleration calculated for trailer (%)		Condition vehicle laden/unladen	
2,0	-	1,8	-	1,02		-	-	18,8	-	laden	
4,0		3,6		2,19	-	-	-	41,2	-		
5,0	-	4,5	-	2,55	-	-	-	48,2	-		
-	-	3,2	3,0	2,27	2,37	-	-	48,3	50,5	Un laden	
3.1.3.2. If the trailer is fitted with a compressed air braking system, the pressure in the control line shall not exceed 650 kPa and the pressure in the supply line shall not exceed 700 kPa during the brake test. The test speed is 60 km/h.											
<div style="text-align: right;">: pass/fail</div>											
1.4.4 Calculation factor for deceleration											
Mass of the combination				19.000	kg						
Unladen weight under axles				6.330	kg	Un Laden	:	2,14			
Maximum weight under axles				10.000	kg	laden	:	1,9			
Rolling resistance value				1	%						
Remarks: N/A											
Weights of combination under test conditions											
Unladen			Laden			Tractor unit solo					
Axle 1	5.130	kg	Axle 1	5.390	kg	Axle 1	-	kg			
Axle 2	2.110	kg	Axle 2	3.540	kg	Axle 2	-	kg			
Axle 3	6.330	kg	Axle 3	10.070	kg	Total	7.200	kg			
Axle 4	lifted	kg	Axle 4	lifted	kg						
Axle 5	lifted	kg	Axle 5	lifted	kg						
Total	13.570	kg	Total	19.000	kg						

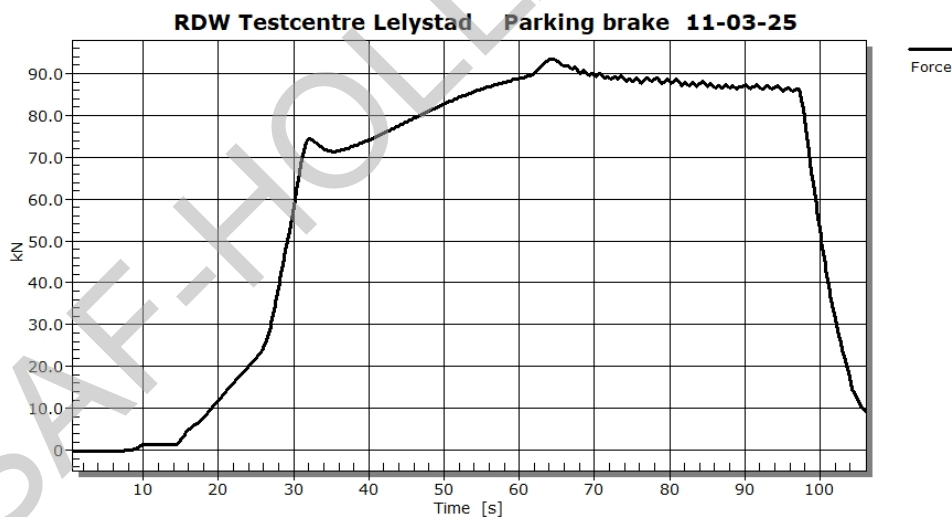


3.2.Parking brake				
Brake force forward	8.590	daN	On axle number	: 2 + 3
Brake force rearward	9.360	daN	Support legs used	: yes/no ⁽¹⁾
Control force	-	daN		
Lever length	76	mm		
Brake chamber				
Make	: SAF			
Type	: 20/24			
ID No.	: Test report BC 0046.3			
Remarks:				

Lining KB 5111



Parking brake forwards



Parking brake rear wards



ANNEX 6

Method of measuring the response time on vehicles equipped with compressed-air braking systems

1. General

- 1.1. For vehicles equipped with load sensing valves, these devices shall be set in the "laden" position. : pass/fail

3. Trailers

- 3.5. Performance requirements

- 3.5.1.1. Trailers equipped with a pneumatic control line and having electric control transmission shall be checked with the electrical power supplied to the trailer via the ISO 7638:2003 connector (5 or 7 pins). : pass/fail

Response time test:

	Pneumatic (sec.)	CAN (sec.)	value shall not exceed 0.4 second (1)
Axle 1:	0,37	0,29	pass/fail
Axle 2:	0,37	0,29	pass/fail
Axle 3:	0,37	0,29	pass/fail

(1) If the figure representing the hundredth is five or more, the response time shall be rounded up to the next higher tenth.



Distribution of braking among the axles of vehicles and requirements for compatibility between towing vehicles and trailers

1. General requirements

1.3. Validation of the development of braking force.

1.3.1. At the time of type approval it shall be checked that the development of a braking on an axle of each independent axle group shall be within the following pressure ranges:

(a) Laden vehicles:

At least one axle shall commence to develop a braking force when the pressure at the coupling head is within the pressure range 20 to 100 kPa or equivalent digital demand value.

: pass/fail

At least one axle of every other axle group shall commence to develop

a braking force when the coupling head is at a pressure < 120 kPa or equivalent digital demand value.

: pass/fail

(b) Unladen vehicles:

At least one axle shall commence to develop a braking force when the pressure at the coupling head is within the pressure range 20 to 100 kPa or equivalent digital demand value.

: pass/fail

	Unladen (10 ² kPa)	Laden (10 ² kPa)
Axle nr 1	0,6	0,5
Axle nr 2	0,6	0,5
Axle nr 3	0,6	0,5

6. REQUIREMENTS TO BE MET IN CASE OF FAILURE OF THE BRAKING DISTRIBUTION SYSTEM

In the event of failure of the control of the device on trailers, a service braking performance of at least 30 per cent of that prescribed for the vehicle in question shall be attained

: pass/fail/N/A









