NZ TRANSPORT AGENCY
WAKA KOTAHI

Heavy Vehicle Specialist Certificate

Must be presented to a CoF (Heavy) Inspecting Organisation

Heavy Vehicle Specialist Inspector and Inspecting Organisation

Heavy Vehicle Specialist Inspector's or Manufacturing Inspecting Organisation's Name *(PRINT IN CAPS)*: Chris Clarke

ID: CJC

Vehicle Registration*:

VIN/Chassis Number: 7A9E10017F1023405

Component being certified:

- [ ] Chassis
- [ ] Load Anchorage
- [ ] Log Bolsters
- [ ] Towing Connection
- [X] Brakes
- [ ] SRT
- [ ] PSV Stability
- [ ] PSV Rollover
- [ ] Swept Path
- [ ] PBS

Certification Category: HVEK

Description of Work:

CERTIFY TO SCHEDULE 5

ROLL STABILTY FUNCTION ACTIVATED

Code/Standard/Rule Certified to: HVBR 32015/3 Schedule 5

Component Load Rating(s): 30000KG

General Drawing Number(s): N/A

Supporting Documents: BRAKE RULE CERTIFICATE - CJC153305

Special Conditions*: WARNING LAMP MUST ILLUMINATE WHEN IGNITION IS SWITCHED ON & THEN EXTINGUISH IMMEDIATELY OR WHEN VEHICLE SPEED EXCEEDS 7 KPH

Certification Expiry Date *(if applicable)*: N/A

or

Hubodometer Reading *(whichever comes first)*:

Declaration

I the undersigned, declare that I am the Heavy Vehicle Specialist Inspector identified and I hold a current valid appointment. I certify that the above mentioned vehicle component's design, manufacture and installation, and this certification complies in all respects with the Land Transport Rule: Vehicle Standards Compliance 2002 and my Appointment. To the best of my knowledge the information contained in the Certificate is true and correct.

Designer's ID *(if different from inspector below)*:

Inspector's Signature:

Inspector's Name *(PRINT IN CAPS)*: CHRIS CLARKE

ID Number: CJC

Date: 28-Aug-15

Number: 525255

CoF Vehicle Inspector ID	CoF Vehicle Inspector Signature	Date

All fields excluding those marked with * must be completed before this certificate can be accepted.

Calculation in accordance with ECE Regulation 13 (11 Series) and EEC Directive 71/320 EEC (2002/78/EC) using Knorr-Bremse Braking System Designer software (version 14.0).

Results based on vehicle data and components as defined by the Braking System Designer program user.
No liability assumed by Knorr-Bremse regarding the use of non-Knorr-Bremse product data.

Customer: DOMETT T&T

Vehicle: 7A9E10017F1023405

Project: 5AFT TANKER

Vehicle

Type		**2x3 Drawbar trailer**
Calculated effective wheelbase [m]		**6.30**
Laden (max.) mass [kg]		**35200.00**
Laden (max.) front axle group load [kg]		**16000.00**
Laden vertical position of CoG [m]		**1.58**
Unladen (min.) mass [kg]		**6400.00**
Unladen (min.) front axle group load [kg]		**3100.00**
Unladen vertical position of CoG [m]		**1.00**
Laden/unladen front air spring press.	**[bar]**	**4.90/0.50**
Laden/unladen rear air spring press.	**[bar]**	**4.00/0.30**

Axles

		Axle 1	Axle 2	Axle 3	Axle 4	Axle 5
Axle distances [m]		-	<----- 1.31 ----->	<----- 4.39 ----->	<----- 1.25 ----->	<----- 1.25 ----->
Axle loads [kg]	**Laden**	8000	8000	6400	6400	6400
	Unladen	1550	1550	1100	1100	1100
Axle type		SAF TDB 0749	SAF TDB 0749	SAF TDB 0749	SAF TDB 0749	SAF TDB 0749
Tyre size		265/70 R 19.5	265/70 R 19.5	265/70 R 19.5	265/70 R 19.5	265/70 R 19.5
Dyn. tyre radius [mm]		421	421	421	421	421
Stat. tyre radius [mm]		401	401	401	401	401
Brake size or radius [mm]		- Disc	- Disc	- Disc	- Disc	- Disc
and Brake type		PAN 19-1 SAF	PAN 19-1 SAF	PAN 19-1 SAF	PAN 19-1 SAF	PAN 19-1 SAF
Actuator numb./axle & size		2 x 16	2 x 16	2 x 16/24	2 x 16/24	2 x 16
Actuator force at	**6.5 bar [N]**	6590	6590	6588	6588	6590
Slack adjuster length [mm]		-	-	-	-	-
Thresh.mom.[Nm] or force[N]		86.85	86.85	86.85	86.85	86.85
Brake Factor by Annex 19		23.0	23.0	23.0	23.0	23.0
Discbrake lever length [mm]		69	69	69	69	69
Int.br.factor (C*) & Mech.eff.(Eta)		- -	- -	- -	- -	- -
Int.br.factor x Mech.eff.(C* x Eta)		-	-	-	-	-
S-Cam radius [mm] or mech.ratio or wedge angle[-]		-	-	-	-	-
Friction material		JURID 539	JURID 539	JURID 539	JURID 539	JURID 539
Cam shaft length [mm]		-	-	-	-	-

Calculation pressure [bar]: 6.5

Database version: 14.0.41

Warning! This brake calculation has been produced using information from a source not controlled by Knorr-Bremse. The results produced by this calculation are therefore dependent upon the accuracy of this information and Knorr-Bremse does not take responsiblity for any resulting errors.

System components

No.	Name	Type	Characteristics
1	Coupling head	KU1...	-
2	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
3	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
4	Trailer EBS G2.x	ES206./9.	Sensors on axle 3
5	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
6	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
7	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
8	Brake Chamber 16" stroke: 64	ROR	BZ 122.1 15/09/2000
9	Electronic Module Premium	ES2071	-
10	Spring Brake Actuator 16/24" stroke: 64/64	ROR	BZ 119.6 / 01/02/2001
11	Spring Brake Actuator 16/24" stroke: 64/64	ROR	BZ 119.6 / 01/02/2001
12	Spring Brake Actuator 16/24" stroke: 64/64	ROR	BZ 119.6 / 01/02/2001
13	Spring Brake Actuator 16/24" stroke: 64/64	ROR	BZ 119.6 / 01/02/2001

Axle identifiers

Axle	Axle identifier	Brake identifier	Axle load ident.	Test report identifier	Suffix	Test code
Axle 1				ID4-TDB 0749		
Axle 2				ID4-TDB 0749		
Axle 3				ID4-TDB 0749		
Axle 4				ID4-TDB 0749		
Axle 5				ID4-TDB 0749		

Calculation pressure [bar]: 6.5

Database version: 14.0.41

Service brake Laden vehicle

Coupling head pres. [bar]	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5
Deceleration [m/s^2]	0.00	0.23	0.75	1.27	1.79	2.31	2.83	3.35	3.87	4.39	4.91	5.43	5.95	6.46	6.98
Braking rate [%]	0.00	2.36	7.66	12.95	18.24	23.54	28.83	34.13	39.42	44.72	50.02	55.31	60.61	65.90	71.20
Axle 1 actuator pres. [bar]	0.2	0.66	1.19	1.72	2.25	2.79	3.32	3.85	4.38	4.91	5.44	5.97	6.5	7.03	7.56
Axle 1 braking torque [kNm]	0.00	0.80	2.61	4.41	6.22	8.03	9.84	11.65	13.46	15.26	17.07	18.88	20.69	22.50	24.31
Axle 1 braking force [kN]	0.00	1.89	6.19	10.48	14.78	19.08	23.37	27.67	31.96	36.26	40.56	44.85	49.15	53.44	57.74
Axle 1 adhesion utilised	0.00	0.02	0.08	0.12	0.17	0.22	0.26	0.30	0.33	0.37	0.40	0.44	0.47	0.50	0.53
Axle 2 actuator pres. [bar]	0.2	0.66	1.19	1.72	2.25	2.79	3.32	3.85	4.38	4.91	5.44	5.97	6.5	7.03	7.56
Axle 2 braking torque [kNm]	0.00	0.80	2.61	4.41	6.22	8.03	9.84	11.65	13.46	15.26	17.07	18.88	20.69	22.50	24.31
Axle 2 braking force [kN]	0.00	1.89	6.19	10.48	14.78	19.08	23.37	27.67	31.96	36.26	40.56	44.85	49.15	53.44	57.74
Axle 2 adhesion utilised	0.00	0.02	0.08	0.12	0.17	0.22	0.26	0.30	0.33	0.37	0.40	0.44	0.47	0.50	0.53
Axle 3 actuator pres. [bar]	0.2	0.61	1.01	1.41	1.81	2.21	2.61	3	3.4	3.8	4.2	4.6	5	5.4	5.8
Axle 3 braking torque [kNm]	0.00	0.61	1.97	3.33	4.69	6.05	7.41	8.77	10.13	11.49	12.85	14.21	15.58	16.93	18.30
Axle 3 braking force [kN]	0.00	1.44	4.68	7.91	11.14	14.37	17.60	20.84	24.07	27.30	30.53	33.76	37.00	40.22	43.46
Axle 3 adhesion utilised	0.00	0.02	0.08	0.13	0.19	0.26	0.32	0.39	0.47	0.55	0.63	0.72	0.82	0.92	1.03
Axle 4 actuator pres. [bar]	0.2	0.61	1.01	1.41	1.81	2.21	2.61	3	3.4	3.8	4.2	4.6	5	5.4	5.8
Axle 4 braking torque [kNm]	0.00	0.61	1.97	3.33	4.69	6.05	7.41	8.77	10.13	11.49	12.85	14.21	15.58	16.93	18.30
Axle 4 braking force [kN]	0.00	1.44	4.68	7.91	11.14	14.37	17.60	20.84	24.07	27.30	30.53	33.76	37.00	40.22	43.46
Axle 4 adhesion utilised	0.00	0.02	0.08	0.13	0.19	0.26	0.32	0.39	0.47	0.55	0.63	0.72	0.82	0.92	1.03
Axle 5 actuator pres. [bar]	0.2	0.61	1.01	1.41	1.81	2.21	2.61	3	3.4	3.8	4.2	4.6	5	5.4	5.8
Axle 5 braking torque [kNm]	0.00	0.62	1.98	3.34	4.70	6.06	7.42	8.78	10.14	11.50	12.86	14.22	15.58	16.94	18.30
Axle 5 braking force [kN]	0.00	1.47	4.69	7.93	11.16	14.39	17.62	20.85	24.08	27.31	30.54	33.78	37.00	40.23	43.47
Axle 5 adhesion utilised	0.00	0.02	0.08	0.13	0.19	0.26	0.32	0.39	0.47	0.55	0.63	0.72	0.82	0.92	1.03

Calculation pressure [bar]: 6.5

Database version: 14.0.41

Service brake Unladen vehicle

Coupling head pres. [bar]	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5
Deceleration [m/s^2]	0.00	0.48	1.35	2.22	3.09	3.96	4.83	5.71	6.57	7.45	8.32	9.19	10.06	10.93	11.80
Braking rate [%]	0.00	4.87	13.77	22.63	31.52	40.38	49.26	58.16	67.01	75.91	84.77	93.66	102.55	111.42	120.30
Axle 1 actuator pres. [bar]	0.2	0.52	0.7	0.88	1.06	1.24	1.42	1.6	1.78	1.96	2.14	2.32	2.5	2.68	2.86
Axle 1 braking torque [kNm]	0.00	0.32	0.93	1.54	2.16	2.77	3.38	4.00	4.61	5.22	5.83	6.45	7.06	7.67	8.29
Axle 1 braking force [kN]	0.00	0.76	2.22	3.67	5.13	6.58	8.04	9.49	10.94	12.40	13.85	15.31	16.77	18.22	19.68
Axle 1 adhesion utilised	0.00	0.05	0.14	0.22	0.31	0.38	0.45	0.52	0.59	0.65	0.71	0.77	0.83	0.88	0.93
Axle 2 actuator pres. [bar]	0.2	0.52	0.7	0.88	1.06	1.24	1.42	1.6	1.78	1.96	2.14	2.32	2.5	2.68	2.86
Axle 2 braking torque [kNm]	0.00	0.32	0.93	1.54	2.16	2.77	3.38	4.00	4.61	5.22	5.83	6.45	7.06	7.67	8.29
Axle 2 braking force [kN]	0.00	0.76	2.22	3.67	5.13	6.58	8.04	9.49	10.94	12.40	13.85	15.31	16.77	18.22	19.68
Axle 2 adhesion utilised	0.00	0.05	0.14	0.22	0.31	0.38	0.45	0.52	0.59	0.65	0.71	0.77	0.83	0.88	0.93
Axle 3 actuator pres. [bar]	0.2	0.49	0.6	0.71	0.82	0.93	1.04	1.15	1.26	1.37	1.48	1.59	1.7	1.81	1.92
Axle 3 braking torque [kNm]	0.00	0.21	0.59	0.96	1.34	1.71	2.08	2.46	2.83	3.20	3.58	3.95	4.32	4.70	5.07
Axle 3 braking force [kN]	0.00	0.51	1.40	2.28	3.18	4.06	4.94	5.84	6.72	7.61	8.50	9.39	10.27	11.16	12.05
Axle 3 adhesion utilised	0.00	0.05	0.14	0.23	0.33	0.43	0.54	0.66	0.78	0.92	1.07	1.22	1.39	1.57	1.77
Axle 4 actuator pres. [bar]	0.2	0.49	0.6	0.71	0.82	0.93	1.04	1.15	1.26	1.37	1.48	1.59	1.7	1.81	1.92
Axle 4 braking torque [kNm]	0.00	0.21	0.59	0.96	1.34	1.71	2.08	2.46	2.83	3.20	3.58	3.95	4.32	4.70	5.07
Axle 4 braking force [kN]	0.00	0.51	1.40	2.28	3.18	4.06	4.94	5.84	6.72	7.61	8.50	9.39	10.27	11.16	12.05
Axle 4 adhesion utilised	0.00	0.05	0.14	0.23	0.33	0.43	0.54	0.66	0.78	0.92	1.07	1.22	1.39	1.57	1.77
Axle 5 actuator pres. [bar]	0.2	0.49	0.6	0.71	0.82	0.93	1.04	1.15	1.26	1.37	1.48	1.59	1.7	1.81	1.92
Axle 5 braking torque [kNm]	0.00	0.22	0.60	0.97	1.34	1.72	2.09	2.47	2.84	3.21	3.59	3.96	4.33	4.71	5.08
Axle 5 braking force [kN]	0.00	0.53	1.41	2.31	3.19	4.08	4.97	5.86	6.74	7.63	8.52	9.40	10.29	11.18	12.07
Axle 5 adhesion utilised	0.00	0.05	0.14	0.23	0.33	0.43	0.54	0.66	0.79	0.92	1.07	1.22	1.39	1.58	1.78

Calculation pressure [bar]: 6.5

Database version: 14.0.41

Miscellaneous

Coupling head pressure where z = 22.5% (laden case)

Pressure[bar] 2.89

Brake chamber pressure where z = 22.5% (laden case)

Pressure[bar] Axle1 : 2.68 Axle2 : 2.68 Axle3 : 2.13 Axle4 : :

Automatic braking performance (laden case) at 6.0 bar

Deceleration [m/s^2] : 3.23

Braking rate [%] 32.9

Vehicle performance in case of a load sensing device control failure (laden case) at 6.5 bar

Front axle group		**Rear axle group**	
Deceleration [m/s^2] :	5.95	Deceleration [m/s^2] :	5.95
Braking rate [%]	60.6	Braking rate [%]	60.6

Parking brake

Laden vehicle

	Up	Down
Max.slope [%] (must be > 18%)	**-34.74**	**26.54**

(max.spring force = 7605 N at 30 mm strok
Required spring force at 18% slope

Axle 1 [N]	-
Axle 2 [N]	-
Axle 3 [N]	3728
Axle 4 [N]	3728
Axle 5 [N]	-

Trailer EBS parameters

Coupling head pressure [bar]	Brake chamber pressure [bar]	
0.8	0.45	
	Unladen	Laden
1.6	0.63	1.09
6.5	1.7	5
Low-range comp. at 1.6 bar	0	0
High-range comp. at 4.5 bar	0	0

Air suspension	Unladen	Laden
Axle boogie load [kg]	3300	19200
voltages [V]	-	-
pressures [bar] defined by vehicle manufacturer	0.3	4

Pressure limitation [bar] -

3rd modulator logic is LS characteristic

Slip differential [%] - **from** - **[bar]**

Axle and Tyre information

Number of axles: 5

Dynamic tyre radius [cm]: 42.1

EMP parameters:

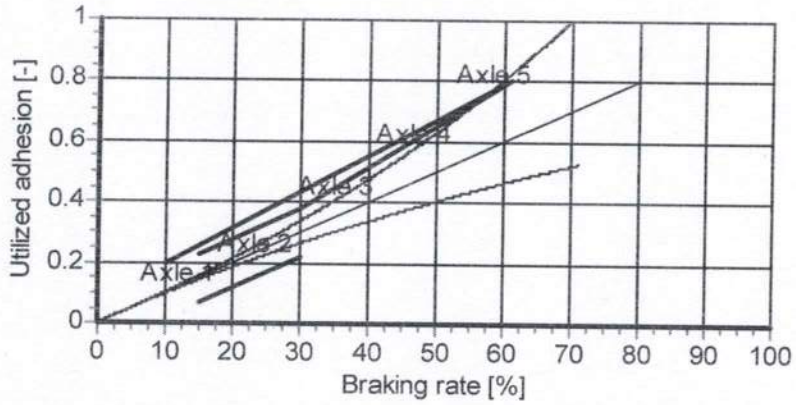
Coupling head pressure [bar]	Brake chamber pressure [bar]	
0.8	0.45	
	Unladen	Laden
1.6	0.74	1.3
6.5	2.5	6.5
Low-range comp. at 1.6 bar	0	0
High-range comp. at 4.5 bar	0	0

Air suspension	Unladen	Laden
Axle boogie load [kg]	3100	16000
voltages [V]	-	-
pressures [bar]	0.5	4.9

Calculation pressure [bar]: 6.5

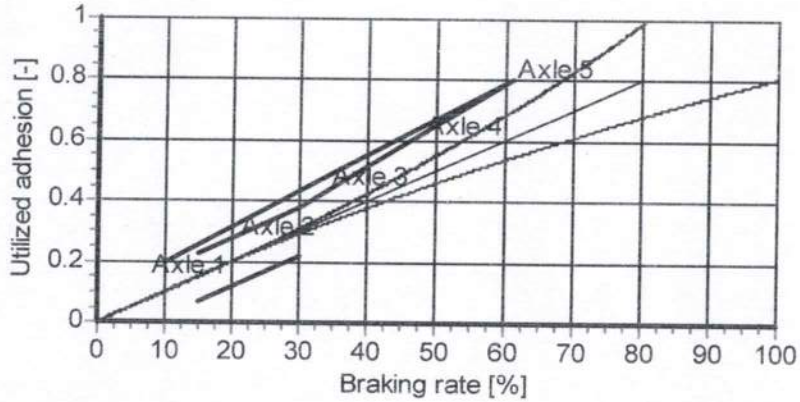
Database version: 14.0.41

Laden vehicle - adhesion utilisation



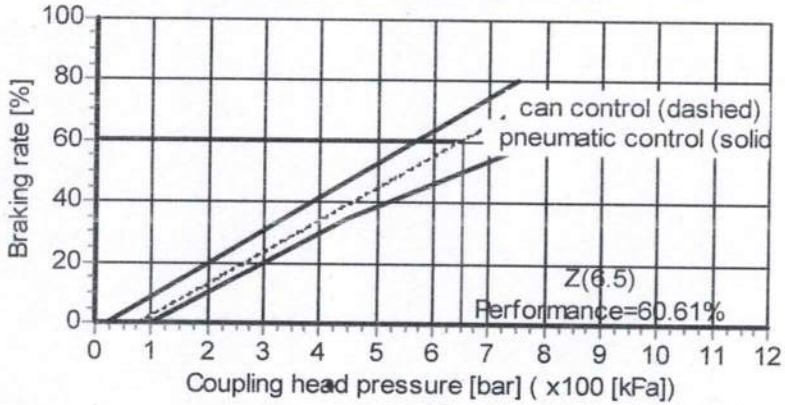
(With anti-lock system the adhesion requirements do not have to be fulfilled.)

Unladen vehicle - adhesion utilisation

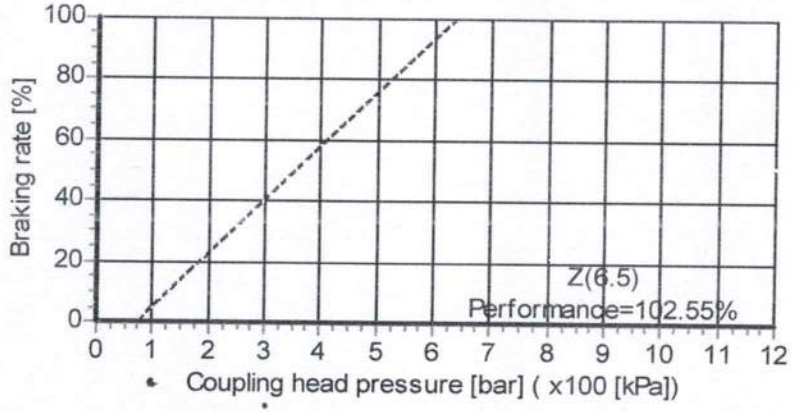


(With anti-lock system the adhesion requirements do not have to be fulfilled.)

Laden vehicle - compatibility with Pneumatic and CAN control



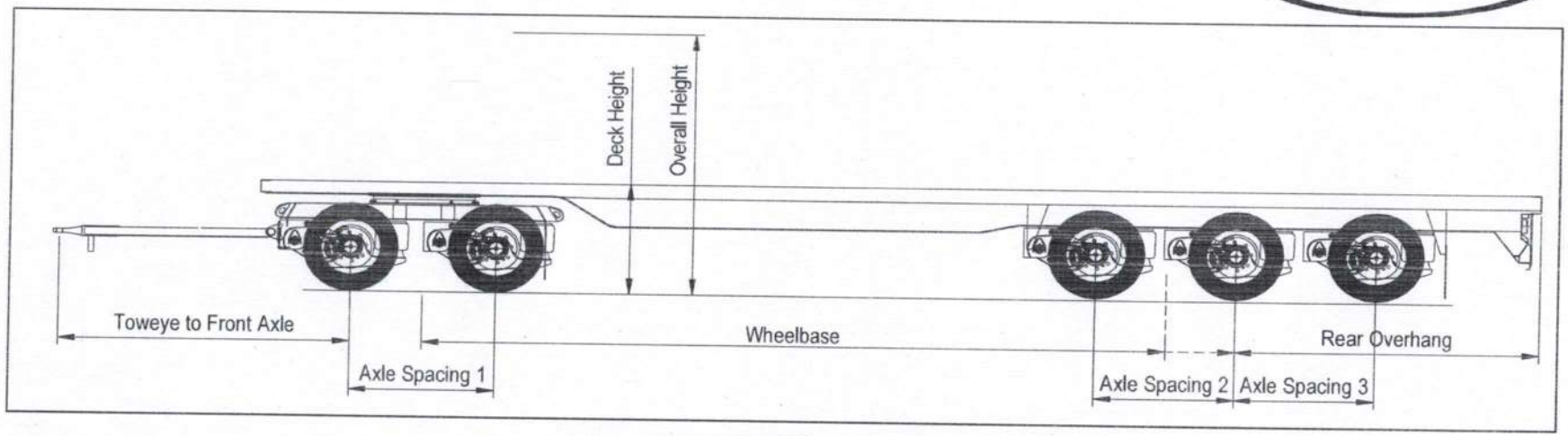
Unladen vehicle - compatibility with Pneumatic and CAN control



Calculation pressure [bar]: 6.5

Database version: 14.0.41

BRAKE CODE INFO SHEET - FULL TRAILERS



Type 5 AXLE FULL TRAILER - TANKER

Toweye to Centreline of Front axle	4590 mm
Wheelbase	5700mm
Axle Spacing 1	1310 mm
Axle Spacing 2	1255 mm
Axle Spacing 3	1255 mm
Front Group Rating	16000 kg
Rear Group Rating	19000 kg
Order Number	4440
VIN Number	7A9E10017F1023405
Chassis Number	1405
Brake Kit Make	Knorr
Brake Kit Type	EBS
Voltage	Multivolt
Prime Mover	
Smartboard System	N/A
Opti-turn System	N/A

Rear Overhang	2186	mm
Deck Height	approx 1000	mm
Overall Height	2480	mm

Make	Domett
Model	E1001
Body Type	Tanker
GVM	30000 kg

Tare Weight Front	approx 3100	kg
Tare Weight Rear	approx 3300	kg

Axle Type	SAF Intradisc SKRZ 9019W
Brake Type	Disc
Axle Test Report #	TDB 0749
Brake Chamber Sizes	18 and 14/16
Suspension	SAF Intradisc IU25/2000RZ-68A
Tyre Size	265/70 R 19.5

KNORR-BREMSE

ECUtalk® - TEBS G2 / G2.x (v.3.3.5.2)

EOL Report

TEBS G2 ES2060	ES2060	K019312V05N00	E48 13R-
SW Version	TBSG.700.141.001.009	KB Help Centre	+ 49 (0) 180 566 77 05
Type	Full-trailer	Manufacturer	Domett
Brake calculation no.	7A9E10017F1023405	VIN	7A9E10017F1023405
Serial number	20142870148	PIN	00 00 05 D2

	Front pressure parameters				Rear pressure parameters			
Demand	Pneumatic (CAN) [bar]				Pneumatic (CAN) [bar]			
Control pressure [bar]	0.80	1.6	4.5	6.5	0.80	1.6	4.5	6.5
Brake press. unladen [bar]	0.45	0.7	1.8	2.5	0.45	0.6	1.3	1.7
Brake press. laden [bar]		1.3	4.4	6.5		1.1	3.4	5.0

Axle	Max. load [kg]		
1	8000	16	0
2	8000	16	0
3	6400	16	0
4	6400	16	0
5	6400	16	0

			Ext.brake demand	None
Bogie load unladen [kg]	3100	3300	Differential slip [%]	-
Bogie load laden [kg]	16000	19200	Max slip demand [bar]	-
Tyre diameter [mm]	842	842	Pressure limit (CAN) [bar]	-
Sensing ring teeth	90	90	ABS Configuration	4S/3M
Module turned	No		3rd modulator	TEPM Premium
TBM LS Type	TBM-Internal		TEPM LS Type	TEPM-Internal
LS1 U_unladen [V]	-		LS-TEPM U_unladen [V]	-
LS1 U_laden [V]	-		LS-TEPM U_laden [V]	-
Spring deflection TBM	-		Spring deflection TEPM-P	-
Lever length TBM	-		Lever length TEPM	-

AUXIO1	Disabled
AUXIO2	Disabled
AUXIO3	Supply
SENS_IN1	Disabled
SENS_SUP	Disabled
INPUT_E	Disabled
INPUT_F	Disabled
P28	Disabled
TEPM-AUXIO1	Disabled
TEPM-AUXIO2	Disabled
TEPM-SENS_IN1	Disabled
TEPM-SENS_IN2	Disabled

	Unladen	Laden
Airspring pressure TBM [bar]	0.4	4
Airspring pressure TEPM [bar]	0.8	5.1
Suspension pressure TBM [bar]	-	-
Suspension pressure TEPM [bar]	-	-

Kilometre counter [km]	0
Next service [km]	9999999
Next service [date]	31/12/2254

6BBD819197466E20

KNORR-BREMSE

ECUtalk® - TEBS G2 / G2.x (v.3.3.5.2)

EOL Report

TEBS G2 ES2060	ES2060	K019312V05N00	E48 13R-
SW Version	TBSG.700.141.001.009	KB Help Centre	+ 49 (0) 180 566 77 05
Type	Full-trailer	Manufacturer	Domett
Brake calculation no.	7A9E10017F1023405	VIN	7A9E10017F1023405
Serial number	20142870148	PIN	00 00 05 D2

EOL Test Result: OK

EOL Test Step Results

Initial "Fault" status (0.0)	OK (1)		
Installation check (1)	OK (1)		
System pressure test (2)	OK (1)		
Warning lamp test (3)	OK (1)		
S-A sensor test (11.1)	OK (1)		
Air gap speed at SA [km/h]	1.86		
S-C sensor test (11.3)	OK (1)		
Air gap speed at SC [km/h]	1.96		
S-D sensor test (11.4)	OK (1)		
Air gap speed at SD [km/h]	1.94		
S-B sensor test (11.2)	OK (1)		
Air gap speed at SB [km/h]	1.84		
RSP installation test (13)	OK (1)		
Stop lamp test (14)	OK (1)		
Stop lamp supply status:	On		
Stop lamp ground status:	OK		
Final "Fault" status (0.1)	OK (1)		

Tester's name	Chris Clarke
Location	Genese Ltd
Date	Friday, 28 August 2015
Additional information	

Signature

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