

Heavy Vehicle Specialist Certificate

Must be presented to a Transport Service Delivery Agent
Heavy Vehicle Specialist Inspector and Inspecting Organisation

Heavy Vehicle Specialist Inspector's or Manufacturing Inspecting Organisation's Name: DON FORDHAM. ID: HDF

Vehicle Registration: HVEK VIN/Chassis Number: 7A9E25017E1023252

Component being certified:

<input checked="" type="checkbox"/> Chassis Modification	<input checked="" type="checkbox"/> Load Anchorage	<input checked="" type="checkbox"/> Log Bolsters
<input checked="" type="checkbox"/> Towing Connection	<input checked="" type="checkbox"/> Brakes	<input checked="" type="checkbox"/> SRT
<input checked="" type="checkbox"/> PSV Stability	<input checked="" type="checkbox"/> PSV Rollover	<input checked="" type="checkbox"/> Swept Path
<input checked="" type="checkbox"/> PBS		

Description of Work: TO COMPLETE BRAKE SYSTEM. (DOMNATT 5-AXLE FULL)

Code/Standard/Rule Certified to: NZ HVS RULE 3015. Component Load Rating(s):
FRONT: 16000 Kg.
REAR: 19000 Kg.

General Drawing Number(s): N/A.
 Supporting Documents: COMPLIANCE PAPERS.

Special Conditions: ROLL STABILITY ACTIVATED.

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: [Signature]
 Inspector's Name: [PRINT IN CAPS] ID Number:
 Date: 29-04-2014. Number: 465876

CoF Vehicle Issued By ID: _____ CoF Vehicle Inspector Signature: _____ Date: _____

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

HALDEX EBS/ABS END OF LINE TEST REPORT



ECU Configuration	4S : 3M Front Remote, Rear Master ECU Left
Vehicle Ident Number	7A9E25017E1023252
Brake Calculation	1023252
Manufacturer	Dommett
ECU Serial Number	030900_63
Software	E681
Odometer (km)	0
Date (DD/MM/YY)	29/04/14
Time	16:11

Wheel Scale	Rdyn (mm)	No. Of Teeth
S1A/S1B	421	90
S2A/S2B	421	90

Sensor Tests			Not Applicable
S1A	S1B	S2A	S2B
-	-	-	-

Sensor-Modulator Tests			Passed
S1A	S1B	S2A	S2B
Passed	Passed	Passed	Passed

Push Through Tests		Passed
P21	P22	P23
7.1	7.2	6.8

EBS Pressure Tests					Passed		
	INPUTS		OUTPUTS		Results		
	MASTER	REMOTE	MASTER	REMOTE	P21	P22	P23
Unladen Suspension	0.3	0.6					
Laden Suspension	3.8	4.6					
P0	0.4	0.4					
PD	0.7	0.7	0.4	0.4	0.4	0.5	0.3
PP1 [U]					-	-	-
PP1 [L]	-	-	-	-	-	-	-
PP2 [U]					-	-	-
PP2 [L]	-	-	-	-	-	-	-
PP3 [U]	6.5	6.5	2.2	2.5	2.2	2.2	2.5
PP3 [L]	6.5	6.5	5.0	6.5	4.8	4.8	6.7
P Limit			8.0	8.0			

Options			
		No REV	

Auxiliary Tests			Passed
Lamp		On / Off	Passed
Aux 1	No Aux		-
Aux 2 Red	No Aux		-
Aux 2 Yel	No Aux		-
Aux 3 Red	No Aux		-
Aux 3 Yel	No Aux		-
Aux 4	No Aux		-
Aux 5	No Aux		-
Lat Acc Internal	Fitted		Passed
24N			-

Leak Test	Not Applicable
Pressure Drop	Time Period
-	-

Notes	

Operator's Name	Brakespec Ltd
Signature	 HDF



Company: Brakespec Ltd
 Author: Don Fordham

Created: 29/04/2014
 Modified: 29/04/2014

Document: 7A9E25017E1023252
 Page: 1 / 7

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 13.0).
 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: Dommett

Vehicle: 5-Axle Full Trailer

Project: 7A9E25017E1023252

Vehicle

Type	2x3 Drawbar trailer
Calculated effective wheelbase [m]	7.09
Laden (max.) mass [kg]	35000.00
Laden (max.) front axle group load [kg]	16000.00
Laden vertical position of CoG [m]	2.05
Unladen (min.) mass [kg]	5740.00
Unladen (min.) front axle group load [kg]	2680.00
Unladen vertical position of CoG [m]	0.98
Laden/unladen front air spring press. [bar]	4.60/0.70
Laden/unladen rear air spring press. [bar]	3.80/0.40

Axles

Axle distances [m]	<--- 1.31 --->	<--- 5.18 --->	<--- 1.25 --->	<--- 1.25 --->
Axle loads [kg]	8000	8000	6333	6333
	Laden	Laden		
	Unladen	Unladen		
Axle type	MERITOR (ROR)	MERITOR (ROR)	MERITOR (ROR)	MERITOR (ROR)
Tyre size	361-0022-02-FBKV 265/70 R 19.5	361-0022-02-FBKV 265/70 R 19.5	361-0022-02-FBKV 265/70 R 19.5	361-0022-02-FBKV 265/70 R 19.5

Axle 1	Axle 2	Axle 3	Axle 4	Axle 5
Dyn. tyre radius [mm]	421	421	421	421
Stat. tyre radius [mm]	401	401	401	401
Brake size or radius [mm]	- Disc	- Disc	- Disc	- Disc
and Brake type	Eisa195 LE	Eisa195 LE	Eisa195 LE	Eisa195 LE
Actuator numb./axle & size	2 x 16	2 x 16	2 x 16/24	2 x 16
Actuator force at 6.5 bar [N]	6146	6146	6145	6146
Slack adjuster length [mm]	-	-	-	-
Thresh.mom.[Nm] or force[N]	81.00	81.00	81.00	81.00
Brake Factor by Annex 19	22.0	22.0	22.0	22.0
Discbrake lever length [mm]	74	74	74	74
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	ROR 8616 AF	ROR 8616 AF	ROR 8616 AF	ROR 8616 AF

Calculation pressure [bar]: 6.5

Database version: 13.0.32

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System components

No.	Name	Type	Characteristics
1	Coupling head	KU1...	-
2	Brake Chamber 16" stroke: 67	MASTER	BZ 163.1 20/10/2003
3	Brake Chamber 16" stroke: 67	MASTER	BZ 163.1 20/10/2003
4	Trailer EBS G2	ES206.	Sensors on axle 3
5	Brake Chamber 16" stroke: 67	MASTER	BZ 163.1 20/10/2003
6	Brake Chamber 16" stroke: 67	MASTER	BZ 163.1 20/10/2003
7	Brake Chamber 16" stroke: 67	MASTER	BZ 163.1 20/10/2003
8	Brake Chamber 16" stroke: 67	MASTER	BZ 163.1 20/10/2003
9	Electronic Module Premium	ES2071	-
10	Spring Brake Actuator 16/24" stroke: 61/61	MASTER	BZ 161.2 / BZ 161.2 11/01/2005
11	Spring Brake Actuator 16/24" stroke: 61/61	MASTER	BZ 161.2 / BZ 161.2 11/01/2005
12	Spring Brake Actuator 16/24" stroke: 61/61	MASTER	BZ 161.2 / BZ 161.2 11/01/2005
13	Spring Brake Actuator 16/24" stroke: 61/61	MASTER	BZ 161.2 / BZ 161.2 11/01/2005

Axle identifiers

Axle	Axle identifier	Brake identifier	Axle load identifier	Test report identifier
Axle 1				ID4-361-0022-02-FBKV
Axle 2				ID4-361-0022-02-FBKV
Axle 3				ID4-361-0022-02-FBKV
Axle 4				ID4-361-0022-02-FBKV
Axle 5				ID4-361-0022-02-FBKV



Company: Brakespec Ltd
 Author: Don Fordham

Created: 29/04/2014 Document: 7A9E25017E1023252
 Modified: 29/04/2014 Page: 3 / 7

Service	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5
Laden vehicle															
brake															
Coupling head pres. [bar]	0.00	0.20	0.70	1.20	1.70	2.19	2.69	3.19	3.69	4.19	4.69	5.19	5.69	6.19	6.68
Deceleration [m/s ²]	0.00	2.03	7.12	12.20	17.28	22.37	27.46	32.54	37.63	42.71	47.79	52.88	57.97	63.05	68.14
Braking rate [%]	0.2	0.72	1.24	1.77	2.29	2.82	3.34	3.87	4.4	4.92	5.45	5.97	6.5	7.03	7.55
Axle 1 actuator pres. [bar]	0.00	0.74	2.47	4.19	5.92	7.64	9.36	11.09	12.81	14.54	16.26	17.99	19.71	21.43	23.16
Axle 1 braking torque [kNm]	0.00	1.76	5.86	9.95	14.05	18.14	22.24	26.34	30.43	34.53	38.62	42.72	46.82	50.91	55.01
Axle 1 braking force [kN]	0.00	0.02	0.07	0.12	0.16	0.20	0.24	0.28	0.31	0.35	0.38	0.41	0.44	0.46	0.49
Axle 1 adhesion utilised	0.2	0.72	1.24	1.77	2.29	2.82	3.34	3.87	4.4	4.92	5.45	5.97	6.5	7.03	7.55
Axle 2 actuator pres. [bar]	0.00	0.74	2.47	4.19	5.92	7.64	9.36	11.09	12.81	14.54	16.26	17.99	19.71	21.43	23.16
Axle 2 braking torque [kNm]	0.00	1.76	5.86	9.95	14.05	18.14	22.24	26.34	30.43	34.53	38.62	42.72	46.82	50.91	55.01
Axle 2 braking force [kN]	0.00	0.02	0.07	0.12	0.16	0.20	0.24	0.28	0.31	0.35	0.38	0.41	0.44	0.46	0.49
Axle 2 adhesion utilised	0.2	0.72	1.24	1.77	2.29	2.82	3.34	3.87	4.4	4.92	5.45	5.97	6.5	7.03	7.55
Axle 3 actuator pres. [bar]	0.00	0.48	1.78	3.08	4.38	5.68	6.99	8.29	9.59	10.89	12.19	13.49	14.79	16.09	17.39
Axle 3 braking torque [kNm]	0.00	1.15	4.24	7.33	10.41	13.51	16.60	19.69	22.77	25.86	28.95	32.04	35.13	38.22	41.31
Axle 3 braking force [kN]	0.00	0.02	0.07	0.13	0.18	0.25	0.31	0.38	0.46	0.54	0.63	0.72	0.82	0.93	1.04
Axle 3 adhesion utilised	0.2	0.84	1.03	1.43	1.83	2.22	2.62	3.02	3.41	3.81	4.21	4.6	5	5.4	5.79
Axle 4 actuator pres. [bar]	0.00	0.48	1.78	3.08	4.38	5.68	6.99	8.29	9.59	10.89	12.19	13.49	14.79	16.09	17.39
Axle 4 braking torque [kNm]	0.00	1.15	4.24	7.33	10.41	13.51	16.60	19.69	22.77	25.86	28.95	32.04	35.13	38.22	41.31
Axle 4 braking force [kN]	0.00	0.02	0.07	0.13	0.18	0.25	0.31	0.38	0.46	0.54	0.63	0.72	0.82	0.93	1.04
Axle 4 adhesion utilised	0.2	0.84	1.03	1.43	1.83	2.22	2.62	3.02	3.41	3.81	4.21	4.6	5	5.4	5.79
Axle 5 actuator pres. [bar]	0.00	0.49	1.79	3.09	4.39	5.69	6.99	8.29	9.59	10.89	12.19	13.49	14.79	16.09	17.39
Axle 5 braking torque [kNm]	0.00	1.16	4.25	7.33	10.42	13.51	16.60	19.69	22.78	25.87	28.96	32.05	35.13	38.22	41.31
Axle 5 braking force [kN]	0.00	0.02	0.07	0.13	0.18	0.25	0.31	0.38	0.46	0.54	0.63	0.72	0.82	0.93	1.04

Calculation pressure [bar]: 6.5

Database version: 13.0.32

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Company: Brakespec Ltd
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Created: 29/04/2014 Document: 7A9E25017E1023252
 Modified: 29/04/2014 Page: 4 / 7

Service
 brake

	0.5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5
Unladen vehicle															
Coupling head pres. [bar]	0.00	0.06	1.19	2.31	3.43	4.56	5.68	6.80	7.93	9.05	10.17	11.30	12.42	13.54	14.66
Deceleration [m/s ²]	0.00	0.66	12.09	23.57	35.00	46.45	57.91	69.33	80.81	92.24	103.69	115.15	126.60	138.03	149.48
Braking rate [%]	0.2	0.51	0.69	0.87	1.05	1.23	1.41	1.59	1.78	1.96	2.14	2.32	2.5	2.68	2.86
Axle 1 actuator pres. [bar]	0.00	0.06	0.66	1.25	1.84	2.44	3.03	3.62	4.22	4.81	5.40	6.00	6.59	7.19	7.78
Axle 1 braking torque [kNm]	0.00	0.15	1.56	2.97	4.38	5.79	7.20	8.61	10.02	11.43	12.84	14.25	15.66	17.07	18.48
Axle 1 braking force [kN]	0.00	0.01	0.11	0.21	0.30	0.39	0.47	0.54	0.62	0.68	0.75	0.81	0.87	0.92	0.97
Axle 1 adhesion utilised	0.00	0.01	0.51	0.69	0.87	1.05	1.23	1.41	1.59	1.78	1.96	2.14	2.32	2.5	2.68
Axle 2 actuator pres. [bar]	0.00	0.06	0.66	1.25	1.84	2.44	3.03	3.62	4.22	4.81	5.40	6.00	6.59	7.19	7.78
Axle 2 braking torque [kNm]	0.00	0.15	1.56	2.97	4.38	5.79	7.20	8.61	10.02	11.43	12.84	14.25	15.66	17.07	18.48
Axle 2 braking force [kN]	0.00	0.01	0.11	0.21	0.30	0.39	0.47	0.54	0.62	0.68	0.75	0.81	0.87	0.92	0.97
Axle 2 adhesion utilised	0.00	0.01	0.11	0.21	0.30	0.39	0.47	0.54	0.62	0.68	0.75	0.81	0.87	0.92	0.97
Axle 3 actuator pres. [bar]	0.2	0.49	0.65	0.8	0.96	1.11	1.27	1.42	1.58	1.73	1.89	2.04	2.2	2.36	2.51
Axle 3 braking torque [kNm]	0.00	0.01	0.52	1.03	1.54	2.04	2.55	3.06	3.57	4.08	4.59	5.10	5.61	6.12	6.62
Axle 3 braking force [kN]	0.00	0.02	1.23	2.44	3.65	4.86	6.07	7.27	8.48	9.69	10.90	12.11	13.32	14.53	15.73
Axle 3 adhesion utilised	0.00	0.00	0.13	0.26	0.40	0.55	0.71	0.89	1.07	1.27	1.49	1.73	1.98	2.26	2.57
Axle 4 actuator pres. [bar]	0.2	0.49	0.65	0.8	0.96	1.11	1.27	1.42	1.58	1.73	1.89	2.04	2.2	2.36	2.51
Axle 4 braking torque [kNm]	0.00	0.01	0.52	1.03	1.54	2.04	2.55	3.06	3.57	4.08	4.59	5.10	5.61	6.12	6.62
Axle 4 braking force [kN]	0.00	0.02	1.23	2.44	3.65	4.86	6.07	7.27	8.48	9.69	10.90	12.11	13.32	14.53	15.73
Axle 4 adhesion utilised	0.00	0.00	0.13	0.26	0.40	0.55	0.71	0.89	1.07	1.27	1.49	1.73	1.98	2.26	2.57
Axle 5 actuator pres. [bar]	0.2	0.49	0.65	0.8	0.96	1.11	1.27	1.42	1.58	1.73	1.89	2.04	2.2	2.36	2.51
Axle 5 braking torque [kNm]	0.00	0.01	0.52	1.03	1.54	2.05	2.55	3.06	3.58	4.08	4.59	5.10	5.61	6.12	6.63
Axle 5 braking force [kN]	0.00	0.03	1.24	2.45	3.65	4.86	6.07	7.28	8.49	9.70	10.91	12.11	13.32	14.53	15.74
Axle 5 adhesion utilised	0.00	0.00	0.13	0.26	0.40	0.55	0.71	0.89	1.07	1.27	1.49	1.73	1.98	2.26	2.57

Calculation pressure [bar]: 6.5

Database version: 13.0.32

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Created: 29/04/2014
 Modified: 29/04/2014

Document: 7A9E25017E1023252
 Page: 5 / 7

Miscellaneous

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

Pressure [bar] 3.01

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

Pressure [bar] Axle1 : 2.92 Axle2 : 2.92 Axle3 : 2.3 Axle4 : 2.

Automatic braking performance (laden case) at 6.0 bar

Deceleration [m/s²] : 3.21

Braking rate [%] 32.7

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

Front axle group

Deceleration [m/s²] : 5.69

Braking rate [%] 58.0

Rear axle group

Deceleration [m/s²] : 5.69

Braking rate [%] 58.0

Parking brake

Laden vehicle

Max. slope [%]	Up	Down
(must be > 18%)	-35.41	25.95

(max. spring force = 7354 N at 30 mm stroke)

Required spring force at 18% slope

Axle 1 [N]

Axle 2 [N]

Axle 3 [N]

Axle 4 [N]

Axle 5 [N]

-

-

3625

3625

-

Calculation pressure [bar]: 6.5

Database version: 13.0.32



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Created: 29/04/2014
 Modified: 29/04/2014

Document: 7A9E25017E1023252
 Page: 6 / 7

Trailer EBS parameters

Coupling head pressure [bar]	Brake chamber pressure [bar]	Unladen	Laden
0.7	0.4		
1.6	0.68	1.11	
6.5	2.2	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]	3060	19000	
voltages [V]	-	-	
pressures [bar]	0.4	3.8	

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:

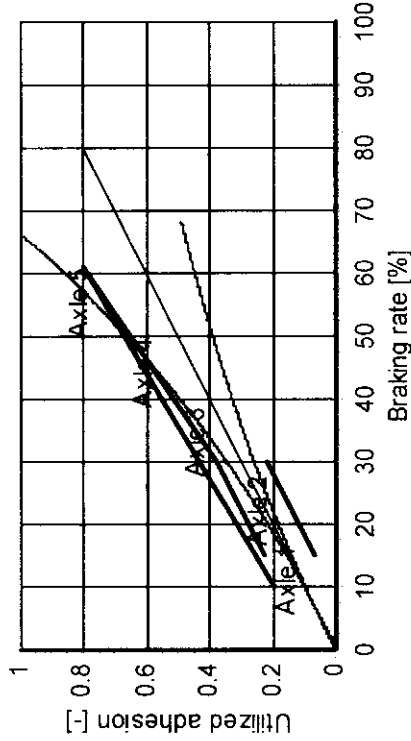
Coupling head pressure [bar]	Brake chamber pressure [bar]	Unladen	Laden
0.7	0.4		
1.6	0.73	1.35	
6.5	2.5	6.5	
Low-range comp. at 1.6 bar	0	0	
High-range comp. at 4.5 bar	0	0	
Air suspension	Unladen	Laden	
Axle boogie load [kg]	2680	16000	
voltages [V]	-	-	
pressures [bar]	0.7	4.6	

Calculation pressure [bar]: 6.5

Database version: 13.0.32

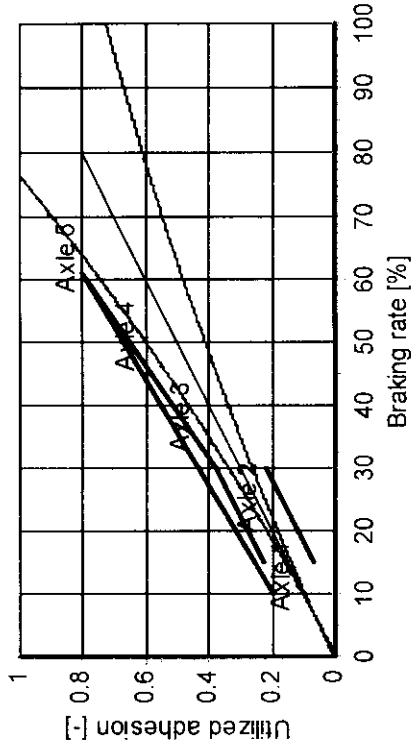


Laden vehicle - adhesion utilisation



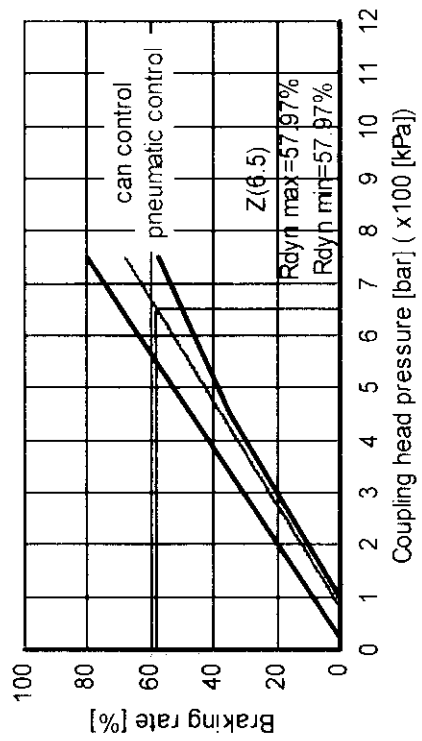
(With anti-lock system the adhesion requirements do not have to be fulfilled.)

Unladen vehicle - adhesion utilisation

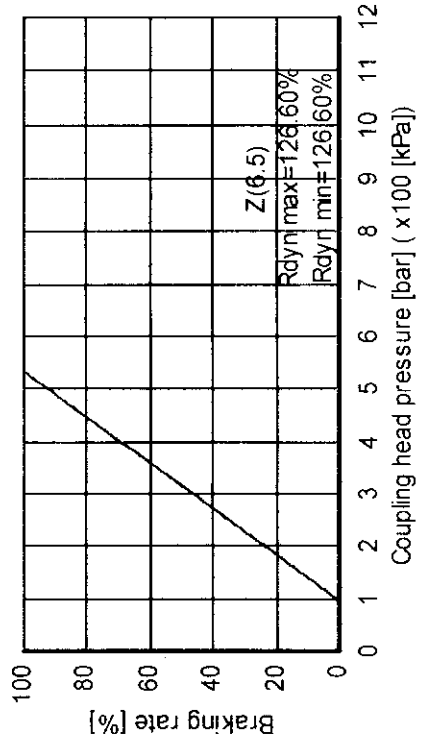


(With anti-lock system the adhesion requirements do not have to be fulfilled.)

Laden vehicle - compatibility with Pneumatic and CAN control



Unladen vehicle - compatibility with Pneumatic and CAN control



Brakespec

Brakespec Limited

● 07 827 3602 ● 07 827 3600 ● brakespec@gmail.com
PO Box 737, Cambridge

THIS VEHICLE COMPLIES TO	
VIN No	
REG No	CHAMBERS
JOB No	SLACK ADJ
TYRES	LINING