



Customer information for work out EEC/ECE - brake calculations for trailers

The trailer manufacturer is responsible for the correct technical data of the trailer and the correct coordination: tyre size, wheel brake, axle loads etc.

In order to facilitate the brake calculations and to avoid errors, we would ask you to observe the following points when completing the HALDEX data sheets:

- A The correct data sheet corresponding to the type of trailer should be completed in full. The use of central axle trailer in place of semi-trailer data sheet is inadmissible. The same applies to full trailer data sheet.
- 1 Mark the schematic drawing corresponding to the trailer. If this is not available we would ask you to provide details of all the relevant additional data.
- 2 The determination of the brake cylinder sizes and the slack adjuster lengths which are used is based on the gross vehicle weight (G.V.W.) and the axle loads. The design of the braking system for higher weights than that normally permissible for normal use is possible. Therefore the higher wear of the brake linings in normal road travel should be taken into consideration and the determination is to be coordinated between trailer/axle manufacturer. Only one weight should be indicated. With semi-trailers and centre axle trailers a king pin load/hook load range can be provided whereby a weight range is given in these cases for an overall weight. With semi and centre axle trailers (also with rigid pole trailers) the overall weight is taken from the total of the axle load(s) and the static king pin and hook load.
- 3 A range for the expected weight/axle loads for unladen conditions can be given. It should be noted in this process that the given weights for unladen condition correspond to the **minimum** possible weights for the unladen condition. With the table found in the "Annex for changed unladen weights" to the brake calculation the other new L.S.V. setting for a changed unladen weight/axle load can be quickly ascertained. For lower unladen weights/axle loads other than those indicated the brake calculation must be re-issued with corresponding expenditure (time and costs !).
- 4 The recording of the centre of gravity can be carried out in accordance with the enclosed example No.: G 14110/1E.

A too high centre of gravity results in a high axle load transfer and thus correspondingly larger dimensions of the brake cylinder and/or slackadjuster lengths on the front axle(s) for full trailers which then results in unnecessary high lining wear.

- 5 The axle distance **L1** can have a range ie. a minimum and maximum value to great groups of trailers. The greater the range selected, the more likely the design of the braking system (equipment) will represent a compromise for the braking behaviour of the individual trailer within a vehicle group, ie. not always optimum.
- 6 The axle distance **ER** is the calculated distance up to the centre of the boggie and is automatically calculated if not given. Only if no lift axles are provided, do the details of the ER suffice in place of the individual wheel bases L1, L2, L3.
- 7 Only has to be entered if the vehicle is not a high speed vehicle (for autobahn/highway) , ie. a restricted maximum speed (eg. 25/40/60 km/h as for agriculture-trailer)
- 8 For use of various types of tyres, please indicate the smallest and largest type of tyre if known, eg. with rdyn. and rstat.
- 9 Indicate the desired ABS system with the corresponding configuration (eg. 4S/3M) and wether you desire a ABS integratation (all ABS valves and the ECU combined in a unit for semi/centre axle trailer) or individual components.
- 10 Indicate the HALDEX number of the desired brake piping layout if known.
- 11 Only by giving the data of the manual hand spindle (with TÜV test number !) can proof be provided for the theoretic effectiveness of the parking brake.
- 12 Precise axle specification by giving details of the type description and the corresponding TÜV report number (in the event of uncommon axle manufacturers, send TÜV report).
- 13 Precise wheel brake specification by giving details of the type description and the corresponding TÜV report number (in the event of uncommon wheel brake manufacturers, send TÜV report).
- 14 With steel suspension the type of the brake load/axle load compensation must be indicated. In the case of doubt send a sketch of the axle boggie. This does not apply for single trailers and 2 axle full trailer.
- 15 The spring deflection difference Δs between laden/unladen (control stroke for L.S.V.) is a further important factor for setting the mechanically controlled L.S.V.. Random guesses or estimated values will result in inadequate braking power of the trailer. (not in our responsibility !)

The spring deflection difference Δs is preferably measured and is the proximity of the frame (to which the L.S.V. is fixed) to the axle with loading of the trailer with the maximum pay load (between given unladen and laden

weight which forms the basis of the brake calculation ie. this must be coordinated !).

The supplier for the leaf spring will assist with a spring nomogram (characteristic) or the direct detail of the spring deflection difference Δs to be expected. The spring deflection difference Δs and the L.S.V. setting (p1/p2, L L.S.V. > 25mm) must be inspected once again before delivery of the trailer (acceptance report for own safety !)

- 16 Comments such as eg. brake cylinder type, number of brake cylinder per axle or brake valve configuration can be included here.
-> *Desired date for work out the brake calculation*
- 17 Point 15 applies (bellow pressure - unladen + laden corresponding to the actual given axle loads) by air suspension
- 18 Details of the lift axle/axles and wether they can be activated together and/or eparately from each other (air suspension).
- 19 Telephone -/ FAX -number and name of the contact person for any questions.

In the event of inaccurate or missing information the brake calculation can only be worked out after enquiries have been made and time lost.

The setting values for the brake valves must be observed in accordance with the brake calculation (BC) from the trailer manufacturer !

The result of the brake calculation is a recommendation for the possible design of the braking system and is to be checked before commissioning of the trailer. The proposed brake cylinders/slack adjuster lengths are to be agreed with axle/wheel brake manufacturer.

The result of the brake calculation is based on the given data and exclusively on the use of Haldex brake valves and Haldex brake actuators.

These data from the brake calculation must be entered in the L.S.V. plate :

Axle load unladen and laden :
Inlet pressure on the L.S.V. p1 :
Outlet pressure on the L.S.V. p2 :

Spring deflection difference for L.S.V. (Steel suspension) Δs :
Lever length from L.S.V. (Steel suspension) L :

Bellow pressure, unladen (Air suspension) p:
Bellow pressure, laden (Air suspension) p:

L.S.V. No. : :

A

-- TELEFAX --

06221 / 703300

EG / ECE - Datenblatt für Drehschemelanhänger



HALDEX HD - Technik

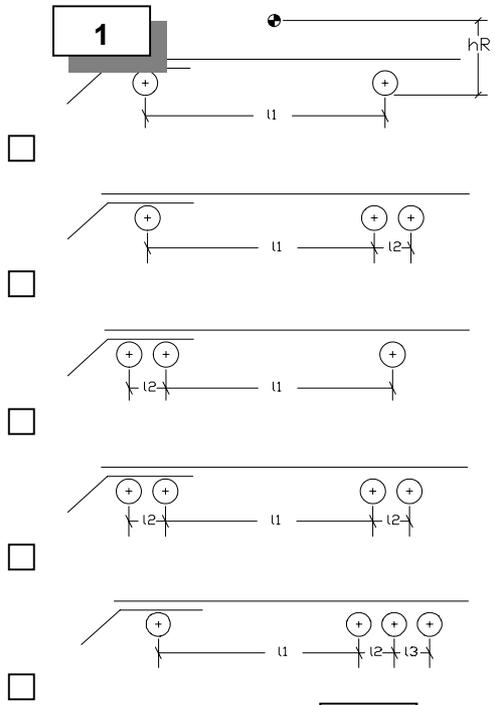
Fahrzeugtyp :

Fahrzeughersteller :

G 14047 / 5 AD

Zulassungsstaat ? _____ !

Einzelabnahme oder TBE (EG/ECE) ? _____ !



technische Daten :

Gesamtgewicht PR

beladen ?

2 Kg

unbeladen ?

3 Kg

Achslast PR 1

Kg

Achslast PR 2

2 Kg

Achslast PR 3

Kg

Achslast PR 4

Kg

Kg

3 Kg

Kg

Kg

Achslast Σ PR

4 Kg

Kg

Schwerpunkthöhe hR

5 mm

mm

Radstand min. l1

mm

mm

Radstand max. l1

mm

mm

Radstand

2.- 3. Achse l2

mm

mm

3.- 4. Achse l3

mm

mm

min. - max. ER

6 mm

mm

Reifengr. max./min. ? 8 mm

Geschw. v_max.

7 Km/h

Km/h

Betriebsbremsystem ? 9

mit ABS oder mit EBS : Typ?S /.....M !

ohne ABS mit ALB ohne ALB mit EPV *)

*) EPV = Anh.-Bremsvtl.+ elektronischer ALB-Regler

Feststellbremsystem ?

mit Federspeicher : Anzahl ? ___ / Typ ? _____

mit Handspindel : Herst.? _____ Typ ? _____

11 Prüfprotokollnummer: _____

Achsen / Radbremsen

Achsenhersteller
Achsentyp / TDB - Nr.

1. Achse

12

2. Achse

3. Achse

4. Achse

Anmerkungen :

10

Radbremshersteller
Bremsstyp und FE/KB - Nr.

13

16

mögliche Hebellängen ?

14

Art der

mechanisch , mit Bremslastausgleich ? ja nein -> (VB oder W/GW etc.)

Hersteller / Typ ? _____ , Federweg bel.-unbel. Δfs1? 15 Δfs2? 15 mm

Federung

Luftfederung - Balgdrücke : beladen 1 ? _____ bar , unbeladen 1 ? _____ bar
beladen 2 ? _____ bar , unbeladen 2 ? _____ bar

Hersteller ? _____ ! Typ ? _____ !

17

Achslift an Achse(n) 18 ! Nachlauflenkung an Achse(n) _____ !

Abt. / Unterschrift :

19

Tel. :

19

Datum :