

TECHNICAL INFORMATION SHEET

Axle weights and load distribution

1. Introduction

This Technical Information Sheet provides guidance on where to position loads on standard 13.6 m (45') long trailers in order to satisfy legal limits for axle weights.

Note: There are many variables that affect the permissible axle loads on a vehicle:

- Using 2 or 3 axle tractor units
- Tractor axle kerb weights
- Fuel load
- Axle design limits
- Tractor unit axle spacing
- Suspension design
- 5th wheel position
- Trailer length
- Trailer tare weights on king-pin and tri-axle
- Position of king-pin from headboard
- Distance between king-pin and tri-axle
- Tri-axle spacing
- Trailer suspension type - mechanical or air suspension

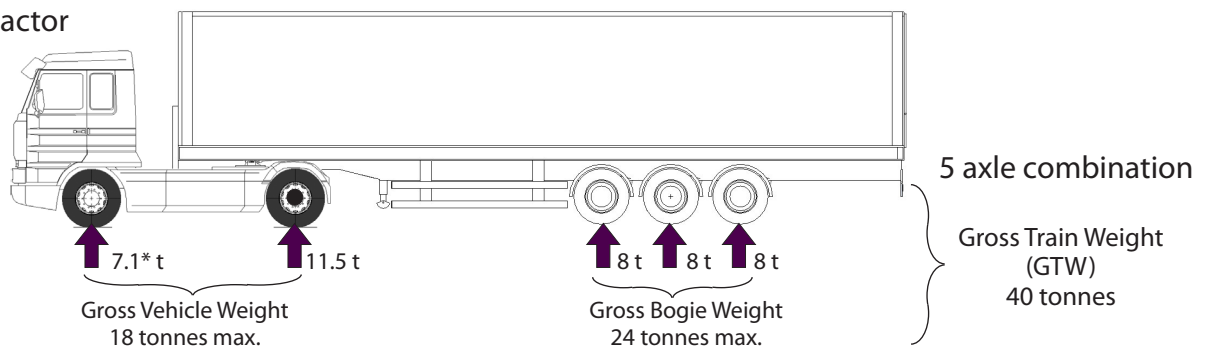


Therefore, this Technical Information Sheet can only provide guidance for *typical* tractor - trailer combinations. **Important note: The final responsibility for meeting legal limits lies with the driver of the vehicle being used.**

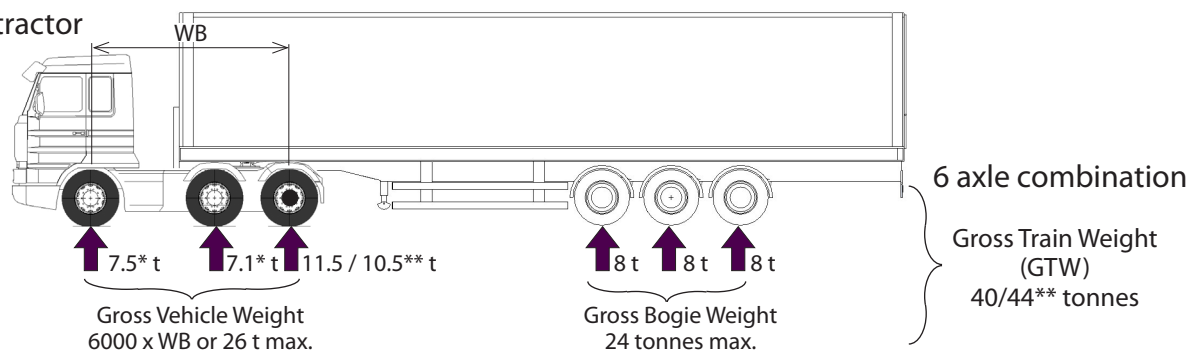
2. Axle weight limits

Axle weight limits vary from country to country and a list of permissible maximum weight limits for the main European destinations can be found in Table 1 on page 4. *Typical* axle weight limits for European freight are shown below:

Two axle tractor



Three axle tractor



* Steer axle and 2nd axle Authorised Weights are make/model specific.

** In the UK Drive axle limit is 10.5 t if GTW exceeds 40 tonnes.

Note: The weight borne by the drive axle must not be less than 25 % of the GTW for international traffic.

TECHNICAL INFORMATION SHEET

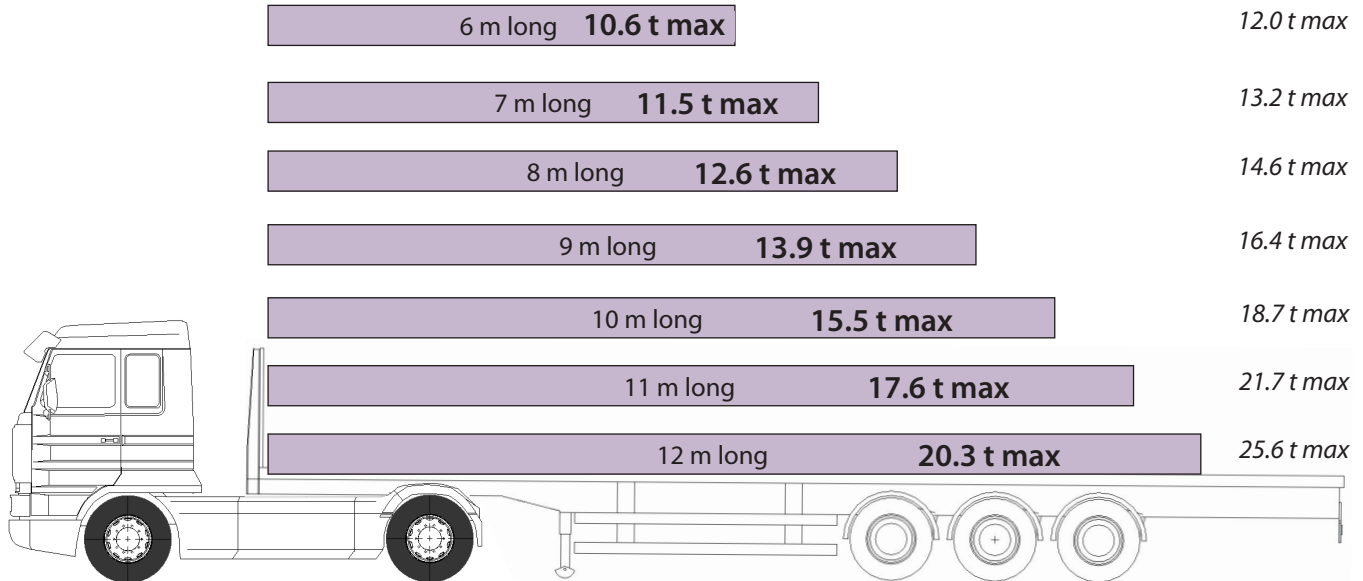
Axle weights and load distribution

3. Maximum payload when loaded to the trailer headboard

The diagrams below show the maximum payload for different length product when loaded to the trailer headboard based on *typical* 2 and 3 axle tractor units and trailers. The figures below and in Section 4 are based on vehicle tare weights of 14.8 tonnes for a 5 axle combination, and 15.9 tonnes for a 6 axle combination with 13.6 m (45') trailers.

3.1 Two axle tractor unit / 5 axle combination

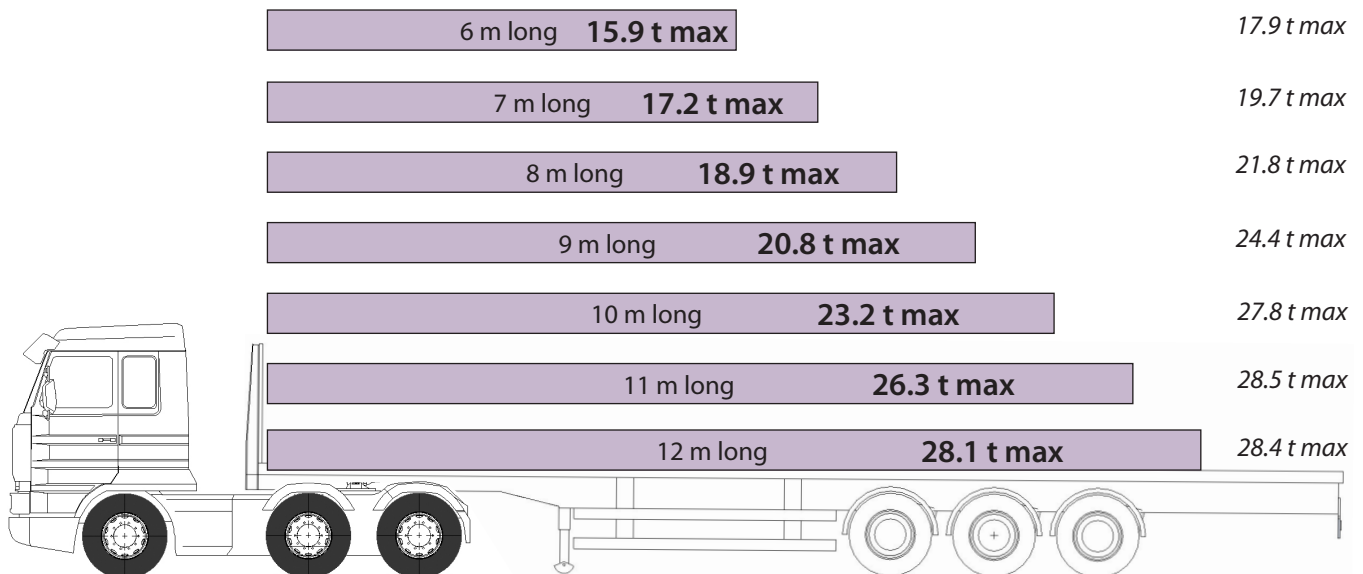
*Weight limits for a
12.2 m (40') trailer*



Maximum payload for different length product loaded to the headboard with a *typical* 2 axle tractor unit and a 13.6 m (45') trailer

3.2 Three axle tractor unit / 6 axle combination

*Weight limits for a
12.2 m (40') trailer*



Maximum payload for different length product loaded to the headboard with a *typical* 3 axle tractor unit and a 13.6 m (45') trailer



1. The above figures are for guidance only based on *typical* tractor and trailer tare weights and dimensions.
2. When loading 3 axle tractor units in the UK for delivery to Mainland Europe, the load should be positioned for a 2 axle unit unless it is known for certain that a 3 axle tractor will be used on the continent.

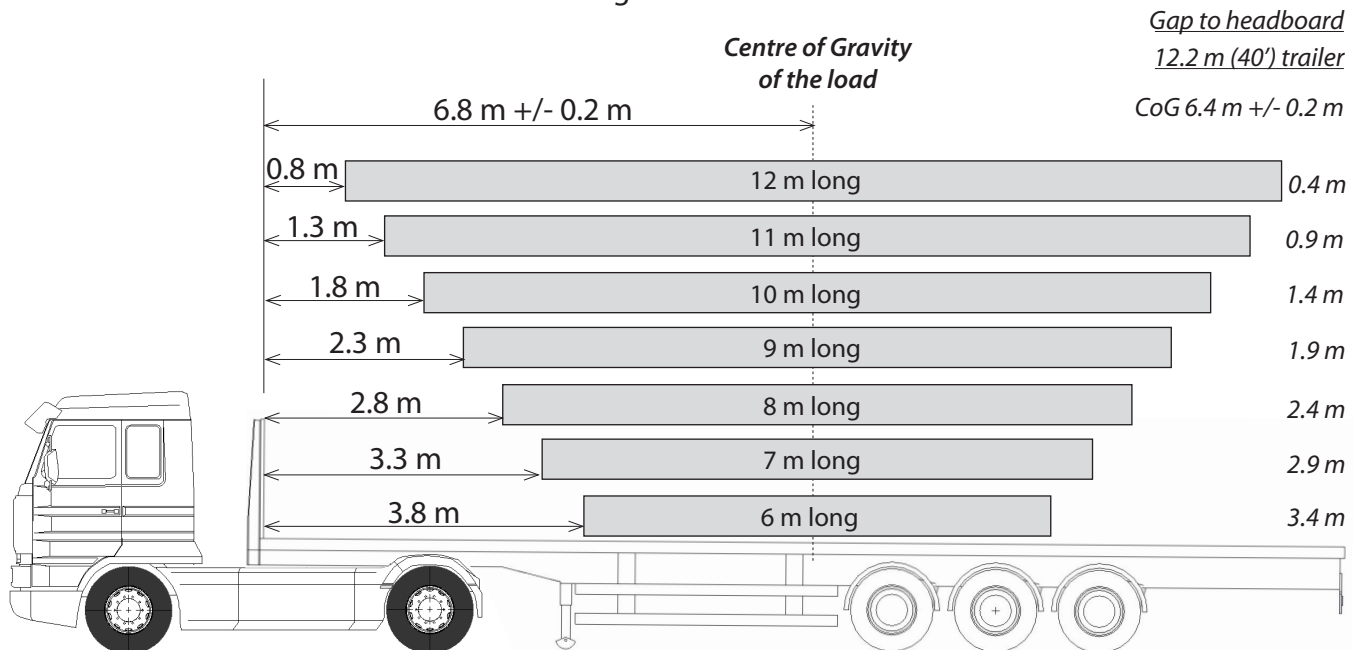
TECHNICAL INFORMATION SHEET

Axle weights and load distribution

4. Load position to meet axle limits with full payloads

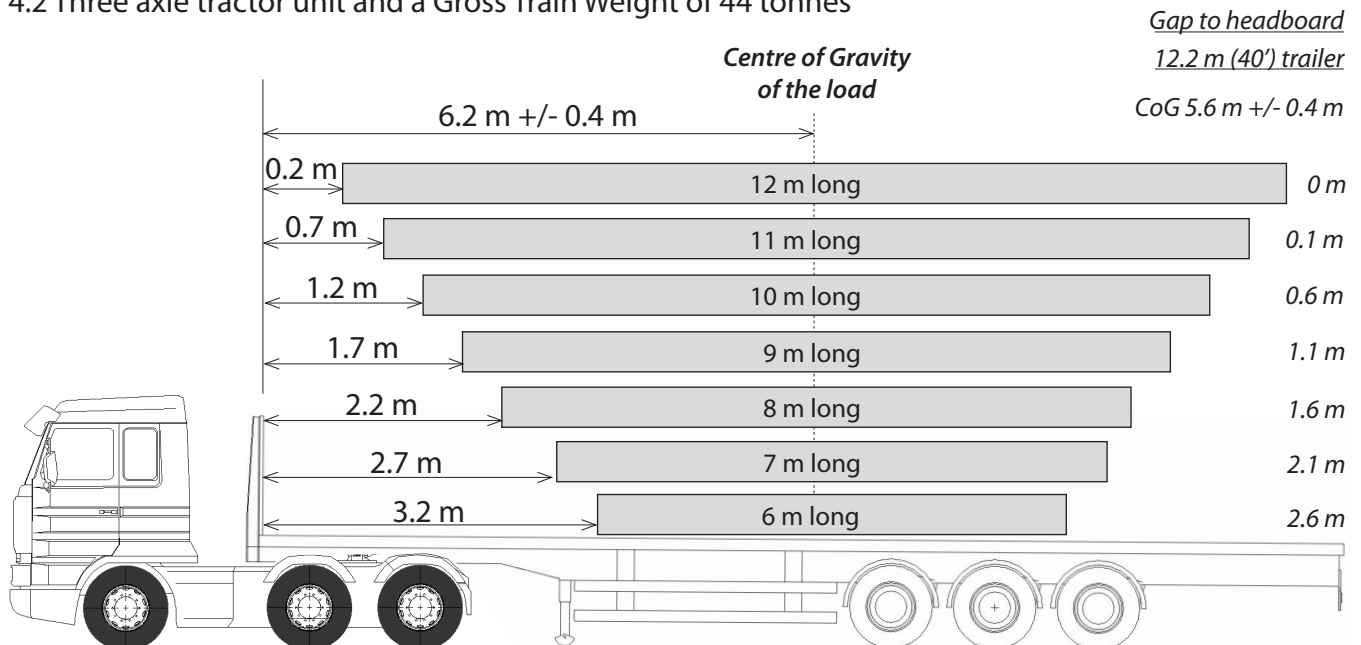
The diagrams below show the optimum position of the load to meet axle load limits when full payloads are carried. The allowable variation shown for the position of the Centre of Gravity also applies to the distance from the headboard i.e. +/- 0.2 m for full payloads. Reducing the payload by 1 tonne adds approximately 0.1 m to the allowable variation.

4.1 Two axle tractor unit and a Gross Train Weight of 40 tonnes



Distance from the trailer headboard of a 25 tonne payload on a **typical** 5 axle vehicle with a 13.6 m (45') trailer.

4.2 Three axle tractor unit and a Gross Train Weight of 44 tonnes



Distance from the trailer headboard of a 28 tonne payload on a **typical** 6 axle vehicle with a 13.6 m (45') trailer.



1. The above figures are for guidance only based on **typical** tractor and trailer tare weights and dimensions.
2. When loading 3 axle tractor units in the UK for delivery to Mainland Europe, the load should be positioned for a 2 axle unit unless it is known for certain that a 3 axle tractor will be used on the continent.

TECHNICAL INFORMATION SHEET

Axle weights and load distribution

Table 1: Permissible maximum weights of 5 and 6 axle articulated trucks in Europe (in tonnes)

Country	Weight per non-drive axles	Weight per drive axle	Tractor 2 axle unit GVW	Tractor 3 axle unit GVW	Trailer tri-axle bogie	Gross train weight 5 axles	Gross train weight 6 axles	Container transport 5 / 6 axles
Albania (AL)	10	10 / 11.5 (1)	18	25 / 26 (1,2)	22	38 / 44 (1)	38 / 44 (1)	
Austria (A)	10	11.5	18	26 (2)	24	40	40	44
Belgium (B)	10	12	19	26	30	43 / 44 (3)	43 / 44 (3)	
Bosnia-Herzegovina (BIH)	10	11.5	20	26	26	40	40	
Bulgaria (BG)	10	11.5	18	26 (2)	24	40	40	44
Croatia (HR)	10	11.5	18	26 (2)	24	40	40	
Czech Republic (CZ)	10	11.5	18	26 (2)	24	42	48	48
Denmark (DK)	10	10 / 11.5 (1)	18	24 / 26 (1,2)	24	42	48	
Finland (FIN)	10	11.5	18	26 (2)	30	42	48	
France (F)	13/12 (2,4)	13/ 12 (2,4)	19	26	24	40 / 44 (5)	40 / 44 (5)	44
Germany (D)	10	11.5	18	26 (2)	24	40	40	44
Greece (GR)	7 / 10	11.5 / 13	18	26	24	40	40	44
Hungary (H)	10	11.5	18	26 (2)	24	40	40	44
Ireland (IRL)	10	10.5/11.5 (6)	17 / 18	26 (2)	24	40 / 42(7)	44 / 46 (8)	44
Italy (I)	12	12	18	26 (2)	26	44	44	44
Netherlands (NL)	10	11.5	21.5	33	30	50	50	
Norway (N)	10	11.5	19.5	26 / 29.5 (9)	30	47	47	
Poland (PL)	10	11.5	18	26 (2)	24	40	40	44
Portugal (P)	10	12	19	26	24	40	40	44
Romania (RO)	10	11.5	18	26	24	40	40	44
Russia (RUS)	10	10	18	25 (2)		38	38	
Serbia (SRB)	10	11.5	18	24	22	40	40	44
Slovakia (SK)	10	11.5	18	26 (2)	24	40	40	
Slovenia (SLO)	10	11.5	18	25	24	40	40	44
Spain (E)	10	11.5	18	26	24	40	40	42 / 44
Sweden (S)	10	11.5	18	26 (2)		48 / 60 (10)	48 / 60 (10)	
Switzerland (CH)	10	11.5 (11)	18	26 (2)	24	40	40	
Turkey (TR)	10	11.5	18	25 / 26 (9)		40	40	44
Ukraine (UA)	10	11	16/18	22 / 24		38	38	44/46 (12)
United Kingdom (GB)	10	11.5/10.5(2,4)	18	26 (13)	24	40	44	44

Notes

- (1) Lower figure is for national traffic; higher figure is for international traffic.
- (2) With road friendly (air) suspension or similar.
- (3) 43 t with mechanical suspension, 44 t with air suspension.
- (4) Drive axle must not exceed the lower figure for a 3 axle tractor unit operating above 40 t GTW.
- (5) 44 t limit for vehicles registered after 1 Oct 2009. As of 30 Sept 2014, also vehicles registered after 1 Oct 2001 (Euro III vehicles).
- (6) Mechanical suspension national traffic 10.5 t; air suspension national traffic 11.5 t; international traffic 11.5 t.
- (7) 42 t limit only until 31 Dec 2014 - then reverts to 40 t limit.
- (8) 46 t limit requires vehicle to have Electronic Braking System and Electronic Stability Control.
- (9) Certain national conditions apply.
- (10) For vehicles engaged in combined road/rail transport. In Sweden the higher value relates to 'B-doubles'.
- (11) Switzerland enforce a *minimum* drive axle load limit of 25% of the Gross Train Weight to ensure traction.
- (12) Licensed by state Motor Road service of Ukraine 5 axle + limit is 46 t.
- (13) 6 x Tractor Wheel Base (in m) capped at 26 tonnes. Must have road friendly suspension.

Sources: International Transport Forum 12 Oct 2011

IRU Maximum weights and dimensions 12 Mar 2012

Road Safety Authority Ireland Weights and Dimensions leaflet Feb 2013



When planning a load, the lowest limits of the countries on the whole route must be used.

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