Commission Regulation (EU) No 1230/2012 of 12 December 2012 implementing Regulation (EC) No 661/2009 of the European Parliament and of the Council with regard to type-approval requirements for masses and dimensions of motor vehicles and their trailers and amending Directive 2007/46/EC of the European Parliament and of the Council (Text with EEA relevance)

ANNEX I

TECHNICAL REQUIREMENTS

PART B

Vehicles of category M_2 and M_3

1. **Maximum authorised dimensions**

1.1. The dimensions shall not exceed the following values:

1.1.1. Length

(a) Vehicle with two axles and one section: 13,50 m

(b) Vehicle with three or more axles and one section: 15,00 m

(c) Articulated vehicle: 18,75 m

1.1.2. Width: 2,55 m;

1.1.3. Height: 4,00 m

1.2. For the purposes of measurement of the length, width and height, the vehicle shall be at its mass in running order, placed on a horizontal and flat surface with tyres inflated at the pressure recommended by the manufacturer.

[F1 1.3. The devices and equipment referred to in Appendix 1 shall not be taken into account for the determination of the length, width and height.**]**

Textual Amendments

F1 Substituted by Commission Regulation (EU) 2019/1892 of 31 October 2019 amending Regulation (EU) No 1230/2012 as regards type-approval requirements for certain motor vehicles fitted with elongated cabs and for aerodynamic devices and equipment for motor vehicles and their trailers (Text with EEA relevance).

[F2 1.3.1. Additional requirements for aerodynamic devices referred to in Appendix 1

Textual Amendments

F2 Inserted by Commission Regulation (EU) 2019/1892 of 31 October 2019 amending Regulation (EU) No 1230/2012 as regards type-approval requirements for certain motor vehicles fitted with elongated cabs and for aerodynamic devices and equipment for motor vehicles and their trailers (Text with EEA relevance).

1.3.1.1. Aerodynamic devices and equipment not exceeding 500 mm in length in the in-use position shall not increase the overall usable cargo space. They shall be constructed in such a way as to make it possible to lock them in the retracted or folded and the in-use positions. Such devices and equipment shall furthermore be constructed so as to be retractable or foldable when the vehicle is at stand-still in such a way that the maximum authorised width of the vehicle referred to in point 1.1.2. is not exceeded by more than 25 mm on each side of the vehicle and the maximum authorised length

of the vehicle referred to in point 1.1.1. is not exceeded by more than 200 mm as permitted only from a height above the ground of at least 1 050 mm so that they do not impair the capability of the vehicle to be used for intermodal transport. In addition, the requirements set out in points 1.3.1.1.1 and 1.3.1.1.3. shall be met.

1.3.1.1.1. The devices and equipment shall be type-approved in accordance with this Regulation.

1.3.1.1.2. It shall be possible for the operator to vary the position of the aerodynamic device and equipment, and to retract or fold it, by applying a manual force not exceeding 40 daN. In addition, this may be done automatically as well.

1.3.1.1.3. It is not required for devices and equipment to be retractable or foldable if the maximum dimensional requirements are fully complied with under all conditions.

1.3.1.2. Aerodynamic devices and equipment exceeding 500 mm in length in the in-use position shall not increase the overall usable cargo space. They shall be constructed in such a way as to make it possible to lock them in both the retracted or folded and the in-use positions. Such devices shall furthermore be constructed so as to be retractable or foldable when the vehicle is at stand-still in such a way that the maximum authorised width of the vehicle referred to in point 1.1.2. is not exceeded by more than 25 mm on each side of the vehicle and the maximum authorised length of the vehicle referred to in point 1.1.1. is not exceeded by more than 200 mm as permitted only from a height above the ground of at least 1 050 mm so that they do not impair the capability of the vehicle to be used for intermodal transport. In addition, the requirements set out in points 1.3.1.2.1. to 1.3.1.2.4. shall be met.

1.3.1.2.1. The devices and equipment shall be type-approved in accordance with this Regulation.

1.3.1.2.2. It shall be possible for the operator to vary the position of the aerodynamic device and equipment, and to retract or fold it, by applying a manual force not exceeding 40 daN. In addition, this may be done automatically as well.

1.3.1.2.3. Each main vertical element or combination of elements and main horizontal element or combination of elements forming the devices and equipment shall, when installed on the vehicle and in the in-use position, withstand vertical and horizontal traction and push forces, applied sequentially in up, down, left and right direction, of 200 daN ± 10 % applied statically to the geometric centre of the relevant perpendicular projected surface, at a maximum pressure of 2,0 MPa. The devices and equipment may deform, but the system for adjustment and locking shall not release as a result of the applied forces. The deformation shall be limited to ensure that the maximum authorised width of the vehicle is not exceeded by more than 25 mm on each side of the vehicle, during and after the test.

1.3.1.2.4. Each main vertical element or combination of elements and main horizontal element or combination of elements forming the devices and equipment shall also, when in the retracted or folded position, withstand a horizontal traction force applied in longitudinal rearward direction, of 200 daN ± 10 % applied statically to the geometric centre of the relevant perpendicular projected surface, at a maximum pressure of 2,0 MPa. The devices and equipment may deform, but the system for adjustment and locking shall not release as a result of the applied forces. The deformation shall be limited to ensure that the maximum authorised width of the vehicle is not exceeded by more than 25 mm on each side of the vehicle and the maximum authorised length of the vehicle is not exceeded by more than 200 mm.

1.3.1.3. It shall be verified by the technical service, to the satisfaction of the type-approval authority that aerodynamic devices and equipment positioned in both, the in-use and

the retracted or folded positions, do not significantly impair cooling and ventilation of the powertrain, exhaust system and passenger cabin. All other applicable requirements relating to the vehicle systems shall be fully complied with when the devices and equipment are placed in both their in-use and retracted or folded positions.

By way of derogation concerning the applicable requirements relating to rear underrun protection, the horizontal distances between the rear of the rear underrun protection device and the rear extremity of the vehicle as fitted with aerodynamic devices and equipment may be measured without taking the devices and equipment into account on condition that they exceed 200 mm in length, they are in the in-use condition and the fundamental sections of the elements placed at a height ≤ 2,0 m above the ground measured in unladen condition are made of material having a hardness of < 60 Shore (A). Narrow ribs, tubing and metal wire forming a frame or substrate to support the fundamental sections of the elements shall not be taken into account when determining the hardness. However, in order to eliminate the risk of injuries and penetration of other vehicles in the event of a collision, any ends of such ribs, tubing and metal wire shall not be directed rearward, with the device and equipment both in the retracted or folded and the in-use positions.

As alternative to the derogation referred to in the previous paragraph, the horizontal distances between the rear of the rear underrun protection device and the rear extremity of the vehicle as fitted with aerodynamic devices and equipment may be measured without taking the aerodynamic devices and equipment into account provided that they exceed 200 mm in length, they are in the in-use condition and those devices or equipment comply with the test provisions set out in Appendix 4.

The horizontal distances between the rear of the rear underrun protection device and the rear extremity of the vehicle shall however be measured with the aerodynamic devices and equipment positioned in the retracted or folded position or take into account the resulting projection length in accordance with point 1.6.1 of Appendix 4, if this length exceeds that of the retracted or folded position.**]**

2. **Mass distribution for vehicles fitted with bodywork**

2.1. Calculation procedure

Notations:

‘M’	technically permissible maximum laden mass;
‘TM’	technically permissible maximum towable mass;
‘MC’	technically permissible maximum laden mass of the combination;
‘m_i’	technically permissible maximum laden mass on the solo axle designated ‘i’, where ‘i’ varies from 1 to the total number of axles of the vehicle;
‘m_c’	technically permissible maximum mass at the coupling point;
‘μ_j’	the technically permissible maximum mass on the group of axles designated ‘j’, where j varies from 1 to the total number of groups of axles.

2.1.1. Suitable calculations shall be carried out in order to make sure that the following requirements are fulfilled for each technical configuration within the type.

2.1.2. In the case of vehicles fitted with loadable axles, the following calculations shall be carried out with the suspension of the axles loaded in the normal operating configuration.

[[F2]2.1.3. In the case of alternatively fuelled or zero-emission motor vehicles:

2.1.3.1. The additional weight required for alternative fuel or zero-emission technology in accordance with points 2.3. and 2.4. of Annex I to Directive 96/53/EC shall be defined on the basis of the documentation provided by the manufacturer. The correctness of the declared information shall be verified by the Technical Service, to the satisfaction of the Type-Approval Authority.

2.1.3.2. The manufacturer shall indicate the following additional symbol as well as the value of the additional weight below or to the side of the mandatory inscriptions on the manufacturer's statutory plate, outside a clearly marked rectangle which shall enclose only the mandatory information.

'96/53/EC ARTICLE 10B COMPLIANT – XXXX KG'

The height of the symbol's characters and stated value shall not be less than 4 mm.

In addition, until the introduction of a dedicated entry in the Certificate of Conformity, the value of the additional weight shall be stated under 'remarks' in the Certificate of Conformity as to allow inclusion of this information in on-board vehicle registration papers.**]**

2.2. General requirements

2.2.1. The sum of the technically permissible maximum mass on the solo axles plus the sum of the technically permissible maximum mass on the groups of axles shall not be less than the technically permissible maximum laden mass of the vehicle.

$$M \leq \sum [m_i + \mu_j]$$

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2.2.2. The mass of the vehicle in running order, plus the mass of the optional equipment, the mass of the passengers, the masses 'WP' and 'B' referred to in point 2.2.3, plus the mass of the coupling if not included in the mass in running order, plus the technical permissible maximum mass at the coupling point shall not exceed the technically permissible maximum laden mass.

2.2.3. Load distribution

2.2.3.1. Notations

'P'	number of seating positions, not including the driver and crew member(s);
'Q'	mass of one passenger in kg;
'Qc'	mass of one crew member in kg;
'S_1'	area in m^2 for standing passengers;
'SP'	number of standing passengers stated by the manufacturer;
'Ssp'	rated space for one standing passenger in m^2;
'WP'	number of wheelchair spaces multiplied by 250 kg representing the mass of a wheelchair and user;
'V'	total volume of baggage compartments in m^3 including luggage compartments, racks and ski-box;
'B'	maximum permissible mass of the luggage in kg stated by the manufacturer, including the maximum permissible mass (B') that may be transported in the ski-box if any.

2.2.3.2. The mass Q and Q_c of the seated passengers shall be located at the seating reference points (i.e. the 'R point' of the seat).

2.2.3.3. The mass corresponding to the number SP of standing passengers of mass Q shall be uniformly distributed over the surface available for standing passenger S_1.

2.2.3.4. Where appropriate, the mass WP shall be uniformly distributed over each wheelchair space.

2.2.3.5. A mass equal to B (kg) shall be uniformly distributed in the luggage compartments.

2.2.3.6. A mass equal to B' (kg) shall be located at the centre of gravity of the ski-box.

2.2.3.7. The technically permissible maximum mass at the coupling point shall be located at the coupling point the rear overhang of which is stated by the vehicle manufacturer.

2.2.3.8. Values of Q and Ssp values

Vehicle class	**Q (kg)**	**Ssp (m^2)**
Class I and A	68	0,125 m^2
Class II	71	0,15 m^2
Class III and B	71	Not applicable

The mass of each crew member shall be 75 kg.

2.2.3.9. The number of standing passengers shall not exceed the value S_1/Ssp, where Ssp is the rated space provided for one standing passenger as specified in the table in point 2.2.3.8.

2.2.3.10. The value of the maximum permissible mass of the luggage shall be not less than:

$$B = 100 \times V$$

2.2.4. Calculations

2.2.4.1 The requirements of point 2.2.2 shall be verified in all interior arrangement configurations.

2.2.4.2. In the conditions specified in point 2.2.3 the mass on each solo axle and on each group of axles shall not exceed the technically permissible maximum mass on that axle or group of axles.

2.2.4.3. In the case of a vehicle equipped with a variable seating capacity, with an area available for standing passengers (S_1) and equipped for the carriage of wheelchairs, compliance with the requirements of points 2.2.2 and 2.2.4.2 shall be verified for each of the following conditions as applicable:

(a) with all possible seats occupied followed by the remaining area for standing passengers (up to the standing capacity limit declared by the manufacturer, if reached) and, if space remains, any wheelchair spaces occupied;

(b) with all possible standing areas occupied (up to the standing capacity limit stated by the manufacturer) followed by the remaining seats available for seated passengers and, if space remains, any wheelchair spaces occupied;

(c) with all possible wheelchair spaces occupied followed by the remaining area for standing passengers (up to the standing capacity limit stated by the manufacturer, if reached) and then the remaining seats available for use occupied.

2.2.5. Where the vehicle is laden as specified in point 2.2.2 the mass corresponding to the load on the front steering axle(s) shall in no case be less than 20 % of the technically permissible maximum laden mass 'M'.

[[F2]2.2.5.1 In the case of an articulated vehicle with at least 4 axles of class I having two steered axles, the mass corresponding to the load on the front steering axle(s) shall in no case be less than 15 % of the technically permissible maximum laden mass 'M'.**]**

2.2.6. Where a vehicle is to be type-approved to more than one class, the requirements of Section 2 shall apply to each class.

3. **Towing capacity**

3.1. The technically permissible maximum laden mass of the combination shall not exceed the sum of the technically permissible maximum laden mass plus the technically permissible maximum towable mass.

$$\mathrm{MC} \leq M + \mathrm{TM}$$

3.2. The technically permissible maximum towable mass shall not exceed 3 500 kg.

4. **Technically permissible maximum mass at the coupling point**

4.1. The technically permissible maximum mass at the coupling point shall be at least equal to 4 % of its technically permissible maximum towable mass, or 25 kg, whichever is the greater.

4.2. The manufacturer shall specify in the owner's manual the conditions for the attachment of the coupling to the motor vehicle.

4.2.1. Where appropriate the conditions referred to in point 4.2 shall include the technically permissible maximum mass at the coupling point of the towing vehicle, the maximum permissible mass of the coupling device, the mounting points of the coupling and the maximum permissible rear overhang of the coupling.

5. **Hill-starting ability**

5.1. Vehicles designed to tow a trailer shall be capable of starting five times within five minutes at an up-hill gradient of at least 12 %.

5.2. For performing the test described in point 5.1, the towing vehicle and the trailer shall be laden so as to equal the technically permissible maximum laden mass of the combination.

6. **Engine power**

6.1. The engine shall provide a power output of at least 5 kW per tonne of the technically permissible maximum laden mass of the combination or of the technically permissible maximum laden mass of the solo vehicle where the vehicle is not designed to tow a trailer. **[**[F2]The requirements in this point shall not apply to the electric-only driving mode of hybrid electric vehicles.**]**

[[F1]6.2. The engine power shall be measured in accordance with UNECE Regulation No 85[(1)].**]**

7. **Manoeuvrability**

7.1. The vehicle shall be capable of manoeuvring on either side of a complete trajectory of 360° as shown in Figure 1 in Appendix 3 to this Annex without any of the vehicle's

outermost points protruding beyond the outer circle or intruding inside the inner circle as the case may be.

7.1.1. The test shall be conducted with the vehicle in both the unladen conditions (i.e. at its mass in running order) and loaded to its technically maximum permissible laden mass. **[**[F2]If the vehicle is equipped with aerodynamic devices or equipment referred to in points 1.3.1.1 and 1.3.1.2, the devices and equipment shall be in the deployed and in-use position.**]**

7.1.2. For the purposes of point 7.1, the parts permitted to protrude beyond the vehicle width referred to in Appendix 1 to this Annex shall not be taken into account.

7.2. For vehicles fitted with a loadable axle, the requirement of point 7.1 shall also apply where the loadable axle(s) is in service.

7.3. The requirements of section 7.1 shall be verified as follows:

7.3.1. The vehicle shall manoeuvre inside a circular area defined by two concentric circles, the outer circle having a radius of 12,50 m and the inner circle having a radius of 5,30 m

7.3.2. The outermost front point of the motor vehicle shall be guided along the contour of the outer circle (see Figure 1 in Appendix 3 to this Annex).

[[F2]7.4 With the agreeement of the Technical Service and the Type-Approval Authority, the manoeuvrability requirements may be proved by numerical simulation in accordance with Annex XVI to Directive 2007/46/EC. In case of doubt, the Technical Service or Type-Approval Authority may require a physical full-scale test to be carried out.**]**

8. **Rear swing-out**

8.1. Vehicle with one section

8.1.1. The vehicle shall be tested in accordance with the drive-in test method described in point 8.1.2. **[**[F2]If the vehicle is equipped with aerodynamic devices or equipment referred to in points 1.3.1.1 and 1.3.1.2, the devices and equipment shall be in the deployed and in-use position.**]**

8.1.2. Drive-in test method

The vehicle shall be stationary, a vertical plane tangential to the side of the vehicle and facing outwards from the circle shall be established by marking a line on the ground.

The vehicle shall be moved from a straight line approach into the circular area described in Figure 1 with its front wheels turned such as the front outermost point follows the contour of the outer circle (see Figure 2a of Appendix 3 to this Annex).

8.1.3. The vehicle shall be set to its mass in running order.

8.1.4. The maximum rear swing-out shall not exceed 0,60 m.

8.2. Vehicles with two or more sections

8.2.1. The requirements of point 8.1 shall apply *mutatis mutandis* as regards vehicles with two or more sections.

In such a case, the two or more rigid sections shall be aligned with the plane as shown in Figure 2b of Appendix 3 to this Annex.

[[F2]8.3. With the agreement of the Technical Service and the Type-Approval Authority, the maximum rear swing-out requirements may be proved by numerical simulation in accordance with Annex XVI to Directive 2007/46/EC. In case of doubt, the Technical Service or Type-Approval Authority may require a physical full-scale test to be carried out.**]**

(1) **[**[F1]OJ L 326, 24.11.2006, p. 55.**]**

Textual Amendments

F1 Substituted by Commission Regulation (EU) 2019/1892 of 31 October 2019 amending Regulation (EU) No 1230/2012 as regards type-approval requirements for certain motor vehicles fitted with elongated cabs and for aerodynamic devices and equipment for motor vehicles and their trailers (Text with EEA relevance).

Changes to legislation:
There are outstanding changes not yet made to Commission Regulation (EU) No 1230/2012. Any changes that have already been made to the legislation appear in the content and are referenced with annotations.
View outstanding changes

Changes and effects yet to be applied to :

- Annex 1 Pt. B point 2.1.3.2 word inserted by S.I. 2022/1273 reg. 72(2)(b)(iii)(cc)
- Annex 1 Pt. B point 2.1.3.2 words inserted by S.I. 2022/1273 reg. 72(2)(b)(iii)(dd)
- Annex 1 Pt. B point 1.1.3 words substituted by S.I. 2022/1273 reg. 72(2)(b)(i)
- Annex 1 Pt. B point 2.1.3.1 words substituted by S.I. 2022/1273 reg. 72(2)(b)(ii)
- Annex 1 Pt. B point 2.1.3.2 words substituted by S.I. 2022/1273 reg. 72(2)(b)(iii)(aa)
- Annex 1 Pt. B point 2.1.3.2 words substituted by S.I. 2022/1273 reg. 72(2)(b)(iii)(bb)
- Annex 1 Pt. B point 7.4 words substituted by S.I. 2022/1273 reg. 72(2)(b)(iv)
- Annex 1 Pt. B point 8.3 words substituted by S.I. 2022/1273 reg. 72(2)(b)(v)
- Annex 1 Pt. B point 1.1.3 words substituted (temp.) by S.I. 2019/648, reg. A8(2)(b) (with reg. 11) (as inserted) by S.I. 2020/1393 reg. 2(7)

Changes and effects yet to be applied to the whole legislation item and associated provisions

- Signature words omitted by S.I. 2022/1273 reg. 71(10)
- Annex 5 Pt. B s. 1 words substituted by S.I. 2022/1273 reg. 72(4)(c)(iii)
- Annex 5 Pt. B s. 2 words substituted by S.I. 2022/1273 reg. 72(4)(c)(iv)
- Annex 5 Pt. D s. 1 words substituted by S.I. 2022/1273 reg. 72(4)(e)(iii)
- Annex 1 Appendix 2 point 2.1 words substituted by S.I. 2022/1273 reg. 72(2)(e)(i)
- Annex 1 Appendix 2 point 2.2 words substituted by S.I. 2022/1273 reg. 72(2)(e)(ii)(aa)
- Annex 1 Appendix 2 point 2.2(c) words substituted by S.I. 2022/1273 reg. 72(2)(e)(ii)(bb)
- Annex 1 Appendix 4 point 1.3 words substituted by S.I. 2022/1273 reg. 72(2)(f)
- Art. 2(1) words substituted by S.I. 2022/1273 reg. 71(3)(b)
- Art. 2(2) words substituted by S.I. 2022/1273 reg. 71(3)(c)
- Art. 2(11) words substituted by S.I. 2022/1273 reg. 71(3)(d)
- Art. 2(40) words substituted by S.I. 2022/1273 reg. 71(3)(e)
- Art. 6(1)(1a) substituted for Art. 6(1) by S.I. 2022/1273 reg. 71(8)(a)