



Hydrogen
Europe

Hydrogen Europe Position Paper

Weights and Dimensions Directive

June 2023

Hydrogen Europe position on the revision of the Weights and Dimensions Directive

Executive Summary

As part of its overall climate neutrality goals, the European Union has pledged to reduce greenhouse gas emissions from road transport by 90% in 2050 through the Sustainable and Smart Mobility Strategy. The strategy's focus is to help a sector that carries over 77% of freight transported over land¹ and accounts for more than 25% of GHG emissions from road transport² to transition to more efficient and climate-friendly operations.

To do so, the European Commission planned to update rules on maximum admissible weight and length of heavy-duty vehicles, a measure that would prevent Member States from restricting the circulation of compliant foreign vehicles within their territory while increasing the efficiency of commercial road transport. Those rules were first set out in Council Directive 96/53/EC of 25 July 1996 laying down, for certain vehicles, the maximum authorized dimensions in national and international traffic and the maximum authorized weights in international traffic, also known as the Weights and Dimensions Directive.³ The Directive aimed at implementing a single market for road transport and mitigating the adverse effect that fragmented standards had on competition and on international traffic. A proposal for revision is scheduled for publication in July 2023.

Ahead of the publication of the revised proposal, Hydrogen Europe suggests the following:

- Work on overall simplification and upgrade derogations for hydrogen vehicles to fully fledged provisions, since they are no longer an exception to the rule
- **Increase axle weight limits for both trucks and buses**
- **Grant at least one more meter in length for rigid and articulated hydrogen trucks** to better cater for different onboard storage solutions
- Consider the decarbonisation potential of hydrogen trucks for cross border European Modular Systems (EMS) operations

1. Context

The original Directive 96/53/EC has been updated and modified over time to better reflect technological developments in the commercial road transport industry, where hydrogen vehicles have begun to penetrate the market over time. Amending Directive 2015/719⁴ introduced the notion of alternative fuels and granted trucks and three axle buses an additional weight increase of one tonne. Then, in 2019, the new CO₂ Emission Standards for Heavy-Duty Vehicles⁵ further amended the original Directive 96/53/EC, stating that hydrogen trucks and three-axle buses should be granted another tonne in weight. Lastly, Regulation 2019/1892⁶ granted hydrogen trucks more relaxed provisions in

¹ ACEA, [Trucks : What They Are and Why They Are So Important](#), 2022

² European Commission, [Reducing CO₂ Emissions from Heavy-Duty Vehicles](#), 2023

³ European Union, [Council Directive 96/53/EC of 25 July 1996 laying down for certain road vehicles circulating within the Community the maximum authorized dimensions in national and international traffic and the maximum authorized weights in international traffic](#), 1996

⁴ European Union, [Directive \(EU\) 2015/719 of the European Parliament and of the Council of 29 April 2015 amending Council Directive 96/53/EC laying down for certain road vehicles circulating within the Community the maximum authorised dimensions in national and international traffic and the maximum authorised weights in international traffic](#), 2015

⁵ European Union, [Regulation \(EU\) 2019/1242 of the European Parliament and of the Council of 20 June 2019 setting CO₂ emission performance standards for new heavy-duty vehicles and amending Regulations \(EC\) No 595/2009 and \(EU\) 2018/956 of the European Parliament and of the Council and Council Directive 96/53/EC](#), 2019

⁶ European Union, [Commission Regulation \(EU\) 2019/1892 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](#), 2019

length for heavy duty vehicles designed with an aerodynamic cab, to fully unlock their gains in environmental performance. Therefore, hydrogen trucks fitted with aerodynamic cabs could run in longer tractor-trailer combinations. Overall, this meant that a hydrogen-powered truck could be longer than 18,75m and weigh up to 42 tonnes.

Year	Text	Action	Result
2015	Directive (EU) 2015/719 amending Council Directive 96/53/EC laying down for certain road vehicles circulating within the Community the maximum 3 authorized dimensions in national and international traffic and the maximum 3 authorized weights in international traffic	1 more tonne for trucks and three axle buses running on alternative fuels	Alternative fuel trucks can weigh up to 41 tonnes
2019	Regulation (EU) 2019/1242 setting CO2 emission performance standards for new heavy-duty vehicles	1 more tonne for hydrogen trucks and three axle buses	Hydrogen trucks can weigh up to 42 tonnes
2019	Commission Regulation (EU) 2019/1892 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	Tractors with aerodynamic cabs can benefit from longer tractor-trailer combinations	Hydrogen tractor-trailer combinations can weigh up to 42 tonnes and be longer than 18,75m

The European Commission will propose a revised Directive on Weights and Dimensions in July 2023, in an effort to further improve the functioning of international commercial road transport. Hydrogen Europe welcomes a revised Directive designed to facilitate the scale up of hydrogen-powered heavy-duty vehicles in European commercial road transport. **The new Directive should simplify and cover the content of all existing files into one single text, and derogations currently in place for hydrogen heavy-duty vehicles should be upgraded to fully fledged provisions. That is the precondition for a simpler and more efficient text.**

Lastly, the Directive touches upon the use of European Modular System (EMS), which are longer and heavier tractor-trailer combinations of existing loading units, otherwise known as modules. EMS are a longstanding and very divisive issue for Member States: some of them allow domestic operations to run longer and heavier vehicles, whereas the same vehicle is not allowed to operate in the territory of another Member State. Addressing the patchwork of different national legislations would help reach the goals behind the intended revision.

1. Weight adjustment - trucks

Heavy-duty vehicles operating in international traffic are predominantly articulated vehicles, consisting of a two- or three-axle tractor unit and a three-axle semitrailer. In both rigid and articulated trucks, hydrogen storage systems for fuel cells and hydrogen combustion engines are typically fitted between the rear of the cabin and the front end of the semitrailer.

Current rules allow for a maximum of 40 tonnes for articulated tractor-trailer combinations. For two- and three-axle tractors, the limit is respectively set at 18 and 25 tonnes, meaning that the maximum weight of the semitrailer can either be 22 or 15 tonnes. However, a significant limitation persists: the maximum admissible load on the axles.

2. Length adjustment - trucks

Current rules allow for a maximum length of 16,5m in the case of an articulated vehicle or 18,75m in the case of a road train. Article 9a of Directive 2015/719 granted derogations based on some criteria, which do not include the type of powertrain. Although it could be argued that an alternative fuel or hydrogen powertrain could be a way to obtain gains in energy efficiency, thus qualifying for a length derogation, the amending Directive does not set specific provisions for trucks running on hydrogen.

As hydrogen trucks typically mount storage tanks behind the cabin, a loss of payload becomes the price for running a climate friendly vehicle. The issue is all the more striking when sleeper cabins, fitted on long-haul heavy-duty trucks, are mounted: the extra space needed to accommodate the bunk bed further limits the room between the back of the cabin and the front end of the semitrailer, making it extremely difficult to run a tractor-trailer combination without compromising on payload.

3. Weight adjustments - buses

M-class heavy-duty vehicles⁷ are experiencing a rapid rise of zero-emission buses in the total fleet share: in 2022, sales increased by 13,7%, reaching a 12,7% share of the overall European bus fleet⁸. To further speed up the decarbonisation of the European bus fleet, we recommend adaptations be made to the current axle weight limits to avoid a reduction in passenger capacity.

4. Recommendations

Hydrogen Europe welcomes the updated rules that better reflect the current state of technology. In this respect **axle loads, especially drive axle loads, should be revised upwards by one tonne to maintain a balanced approach. Without that, vehicles would be unable to comply with current axle loads and would not be allowed to operate.**

For what concerns maximum lengths, **Hydrogen Europe suggests increasing the limit for alternative fuel trucks by no less than one meter (ideally 1,5 meters)**, on top of existing allowances, provided this does not improve payload capacity and provided trucks still comply with turning radius requirements set in Point 1.1.5 of Annex I of the Directive 96/53/EC.⁹ Such combination of proposed weight and length adaptations would eliminate payload losses and place hydrogen trucks on a level playing field with diesel equivalents.

Rules for buses should also be updated: **for 2-axle buses running on hydrogen, the load of the drive axle should be revised upwards by one tonne**; 2-axle citybuses should also be granted an allowance of one tonne, which is currently not included in the rules. Similarly, **3-axle articulated buses should be granted one extra tonne for the drive axle and 1,5 tonnes for the non-drive axle to allow more flexibility for the distribution of passengers in the vehicle.**

Lastly, as the aim of European Modular Systems (EMS) is to improve efficiency of commercial road transport, **Hydrogen Europe proposes to favour the use of hydrogen-powered EMS in cross-border**

⁷ M Class vehicles are defined as: "Power-driven vehicles having at least four wheels and used for the carriage of passengers."

European Commission, [EU Classification of Vehicle Types](#)

⁸ ACEA, [Fuel Types of New Buses](#), 2023

⁹ "Any motor vehicle or vehicle combination which is in motion must be able to turn within a swept circle having an outer radius of 12,50 m and an inner radius of 5,30 m"

European Commission, [Consolidated text: Council Directive 96/53/EC of 25 July 1996 laying down for certain road vehicles circulating within the Community the maximum authorized dimensions in national and international traffic and the maximum authorized weights in international traffic](#), 1996

operations, provided conditions are clear: for instance, those vehicles could be operated on specific “hub-to-hub” routes, on main TEN-T corridors between multimodal hubs that are fitted with hydrogen refuelling stations. Then, goods would be loaded onto smaller vehicles or other transport modes to cover the last mile, as is already the case. Hydrogen-powered trucks are well placed to replace diesel trucks on the longest commercial road transport routes, and it therefore makes sense to exploit their benefits to improve efficiency while reducing road traffic and emission levels.

HYDROGEN EUROPE
Avenue Marnix 23
1000, Brussels / Belgium

secretariat@hydrogeneurope.eu
www.hydrogeneurope.eu



Hydrogen
Europe