



BRIEFING | Revision of Directive 96/53/EC on maximum authorised weights and dimensions in national and international traffic

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Introduction

The Weights and Dimensions Directive 96/53/EC¹ (Ws and Ds Directive) sets out maximum authorised weights and dimensions (length, width and height) for heavy-duty vehicles (HDVs), such as lorries and buses, that circulate on EU roads.

At present these are limited to:

Length

- 16.5 metres (m) for articulated trucks
- 18.75 m for road trains

Width

- 2,55 m. or 2,60 m for temperature-controlled transport.

Height

- 4 m

Weight

- 40 tonnes (t)
- 44 t for intermodal transport (see above)

The latest amendments to the Directive, adopted in 2015² and 2019³, brought changes on environmental and safety aspects. This was done by introducing rules to allow for higher weights and/or dimensions for more energy-efficient, less polluting and safer vehicles. These revisions allowed for the uptake of alternatively-fuelled (including zero-emission) power trains and improved vehicle aerodynamics and to ensure interoperability with other modes of transport.

ETSC's starting point when looking at the latest proposed changes to the directive is that they should lead to an improvement in road safety, not make it worse.

In the European Union, 3,310 people lost their lives in police-reported road collisions involving

¹Weights and Dimensions Directive 96/53/EC <http://bit.ly/3OPTEDc>

²Weights and Dimensions Directive 2015/719 <https://bit.ly/44YpsLF>

³Weights and Dimensions Directive 2019/984 <https://bit.ly/450xPGA> and Regulation 2019/1242 <https://bit.ly/3YrNAUI>

an HDV of 3.5t or above in 2018.⁴ The majority of those killed in collisions involving HDVs⁵ are not HDV occupants but other road users. Car occupants represent half (50%) of all deaths in collisions involving HDVs - the largest share of any road user group. Vulnerable road users account for nearly a third (28%). Of these, 13% are pedestrians, 7% are cyclists and 8% are powered two wheelers (PTWs) i.e. motorcycle and moped users. Occupants of HDVs make up 12% of all road deaths involving an HDV, 11% are the drivers and 1% passengers.

The relatively large mass of an HDV translates into a higher severity of injury for other road users involved in a collision. Data from countries that collect distance travelled by vehicle type show that fatal road collisions involving HDVs are much more frequent than those involving other vehicles. On a per-km basis, up to three times as many people die in collisions involving HDVs as die in collisions involving only non-goods vehicles.⁶

Since 2010, in the EU, deaths in collisions involving an HDV⁷ have been reduced by, on average, 1.8% annually compared to a 2.8% reduction in the number of road deaths in collisions where no goods vehicle of either type was involved.⁸ In 2018, 23% of road deaths in collisions involving HDVs occurred within urban areas, 54% on rural non-motorway roads and 23% on motorways⁹.

Up to 40% of all EU road deaths are work-related, involving all sorts of vehicles including HDVs.¹⁰ A recent investigation into all road transport fatalities during 2019 and 2021 from a value chain perspective in Sweden also showed that almost half of the fatalities in the road transport system in 2019 were related to work. Either the fatally injured or their collision partners were at work or commuting. When including third-party casualties, the problem becomes much bigger and more complex.¹¹

Creating safe environments for walking and cycling is crucial to encourage further uptake. Heavy traffic flows are a major deterrent to cycling and walking. Even at low speeds, HDVs are hazardous. ETSC promotes the adoption of a modal priority for road users, the hierarchy being based on safety, vulnerability and sustainability. Walking should be at the top of the hierarchy, followed by cycling.¹² Traffic planning is a crucial tool to separate pedestrians and cyclists

⁴ ETSC PIN Flash 39 (May 2020), How to improve the safety of goods vehicles in the EU? , https://etsc.eu/wp-content/uploads/PIN-FLASH39_FINAL.pdf

In future analysis it would be useful to have differentiated data for collisions involving different truck combination types.

⁵ Heavy Duty Vehicle: heavy goods vehicles with maximum permitted weight over 3.5t (HGVs) as defined by the indicator in the ETSC PIN Flash 39 (May 2020), How to improve the safety of goods vehicles in the EU? , https://etsc.eu/wp-content/uploads/PIN-FLASH39_FINAL.pdf

⁶ ETSC PIN Flash 39 (May 2020), How to improve the safety of goods vehicles in the EU? , https://etsc.eu/wp-content/uploads/PIN-FLASH39_FINAL.pdf

⁷ Heavy Duty Vehicle: heavy goods vehicles with maximum permitted weight over 3.5t (HGVs) as defined by the indicator in the ETSC PIN Flash 39 (May 2020), How to improve the safety of goods vehicles in the EU? , https://etsc.eu/wp-content/uploads/PIN-FLASH39_FINAL.pdf

⁸ ibid

⁹ ibid

¹⁰ ETSC PIN Flash (2017) Tapping the potential for reducing work-related road deaths and injuries (PIN Flash 33) <https://bit.ly/44A4W2K>

¹¹ Kullgren et al (2023) Fatalities in value chains—an attempt to classify road traffic crashes in accordance with the United Nations General Assembly resolution 74/299

¹² ETSC PIN Flash 37 (2019) Safer Roads, Safer Cities: How to improve Urban Road Safety in the EU <https://etsc.eu/safer-roads-safer-cities-how-to-improve-urban-road-safety-in-the-eu-pin-flash-37/>

from HDVs. An increase in weights and dimensions to heavier and longer vehicles and also more HDVs may lead to an increased negative impact of perceived risk that could discourage modal shift to walking and cycling.

The ETSC PIN Report on HDV safety covers a number of further measures that must be taken to improve truck safety.¹³

In ETSC's view, any revision must fully take into account, and mitigate the potential for increased road risk for all road users.

¹³ ETSC PIN Flash 39 (May 2020), How to improve the safety of goods vehicles in the EU? , https://etsc.eu/wp-content/uploads/PIN-FLASH39_FINAL.pdf

What Does the Commission Want to Change?

Extra weight as an incentive for uptake of Zero Emission technology and to promote intermodal transport

One of the most important elements of the EC proposal¹⁴ is that it would raise the weight limit for zero-emission vehicles from the current 40t to 44t, regardless of the actual weight of the actual zero-emission technology. This means that operators will gain additional loading weight and therefore payload capacity if the batteries and drive trains become lighter over time.

The revision also proposes to raise the maximum weight for intermodal zero-emission transport: road operators using their lorries, trailers and semitrailers in intermodal operations will benefit from a 4-tonne higher weight limit and a height limit up to 4m 30 cm for high cube sea containers.

ETSC Recommendation

- Accept this extra weight for ZE vehicles on the condition that a review monitoring any potential increased road risk due to increased weight and height is made five years after implementation.

Allow longer and heavier vehicles (LHVs) to cross borders

The proposal aims to lift restrictions on the cross-border transport of heavier and/or longer vehicles (LHVs) without requiring them to be Zero Emission, which contradicts the new requirements for zero emission HDVs up to 44 tonnes. LHVs are truck and trailer combinations 25.25 metres in length, which is almost **9 metres longer** than typical lorries on Europe's highways, and weighing up to **60 tonnes**.

Such vehicles are as long as six passenger cars and a little shorter than, but weighing as much as, a fully loaded Boeing 737-300.

Previously LHVs were already permitted at national level under the concept of the European Modular System (EMS). Finland and Sweden, had their own rules for LHVs allowing maximum lengths of 22 m and 24m in 1995. EMS are currently allowed under exemptions to the Weights and Dimensions Directive with trial schemes in a number of EU countries.

These Member States authorise the use of EMS of 25.25m long and 60t (EMS1), with the exception of Germany where the maximum authorised weight remains at the general level of 40t (44t for intermodal transport). In some cases (Finland, Sweden and Spain) longer EMS of up to 34,5m and 76t (EMS2) are authorised or being trialled.¹⁵

In some of these trial cases to date, the use of EMS vehicles is restricted to certain parts of

¹⁴ Weights and Dimensions Directive Proposal 2023/0265 <https://bit.ly/3YqsZzY>

¹⁵ Weights and Dimensions Directive Impact assessment [SWD(2023) 441 <https://bit.ly/3YqsZzY>

the road network, which are selected on grounds of road safety, as well as in view of the physical capacity of the infrastructure to withstand the passage of these vehicle combinations. In most cases, the road network has been assessed in order to identify the suitable routes where EMS could be allowed in terms of weight (assessment of sensible infrastructure, such as bridges) and manoeuvrability (infrastructure layout).¹⁶

Currently some Member States allow heavier and/or longer vehicles to cross borders, with special bilateral agreements. The Commission is now proposing to regulate these agreements. The proposed law would not extend the use to Member States that do not currently allow them.

Main Implications for Road Safety and ETSC Recommendations

ETSC has serious concerns about the impact of LHV on road safety. While these vehicles have been allowed to circulate under certain conditions within specific Member States, and between consenting Member States in the past, this proposal formalises and encourages wider take-up and use of this vehicle type. A great number of studies have been produced evaluating the impact of LHVs on the transport system.¹⁷ We believe the potential safety impact of a much wider use of these vehicles has not been fully assessed.

As long as all safety issues are not properly addressed, and in the absence of evidence that likely positive impacts outweigh negative impacts, ETSC would still not recommend the modification of the Directive to allow LHVs to circulate across national borders in the EU.

One of the main concerns beyond all the risks associated with HDVs within the current allowed weights and dimensions, is that greater LHV circulation could lead to a faster degradation in the road infrastructure which will also require more frequent maintenance. This will also have a negative impact on road safety of all road users using those roads.

Operating LHVs on the existing road network would require infrastructure to be adapted to the manoeuvring capacity of those vehicles, their static and dynamic load, and their impact forces during a collision. Work zones on the roads could become particularly dangerous.

Another concern arises in relation to parking, resting and re-fuelling facilities, where conflicts with other road users are likely.

Similarly, existing truck safety infrastructure facilities, such as runaway truck ramps (truck arrester beds), interchange ramps and weaving sections, lay-bys (which are too short, especially in tunnels) and emergency lanes are not designed for LHVs. If clearance and weights increase, the barriers on and under bridges and traffic separating barriers would generally have to be strengthened.

At present roadside and lane separation barriers are built to comply with the current Weights and Dimensions legislation.

Fire safety is also a concern for all HDVs in tunnels, this would be exacerbated by LHVs. In case of roll-over crashes involving LHVs due to their greater length, they would be more likely to

¹⁶ *ibid*

¹⁷ ETSC Position on Longer Heavier Vehicles (2011) <http://archive.etsc.eu/documents.php-did=3.html>
See References

block the entire clear width of traffic lanes which might cause more secondary crashes.

The impact resistance of barriers on bridges crossing above railways may not be sufficient to prevent a crash between a LHV and a train. ETSC's earlier position on LHVs (2011) gives an overview of the literature listing the likely negative impacts, including on infrastructure.¹⁸

Several aspects should be considered in relation to the impact of LHVs on traffic flow: their ability to accelerate and come to a complete stop.

The braking distance of heavier and longer trucks could be impaired, even with more wheels there would be a larger skidding surface which could have more devastating consequences in crashes and higher impact speed. Work ongoing at UNECE on the Automatic Emergency Braking requirements for HGVs is already experiencing severe difficulties in providing a satisfactory standard for interactions with pedestrians and cyclists. At present this is due for implementation in 2027 but only for pedestrians. Other negative aspects include the visibility restriction they create for other road users, the difficulties of being safely overtaken by other vehicles and the threat to vulnerable road users in blind spot areas.

A real challenge seen in countries that already permit LHVs is how these vehicles manage intersections. Their movement is much more difficult, slower and they can get stuck with can lead to congestion, chain reactions and collisions. Furthermore, if intersections are altered and enlarged to allow LHVs to pass around corners more easily there might be unintended circumstances such as other traffic turning at higher speeds which might also increase risks.

LHVs need more time at intersections to finish their manoeuvre, especially turning left and right. During a right (or left) turn, other road users can make a wrong decision about their length – which can lead to a crash. Longer time at intersections also leads to difficulties with sight conditions. This is a really big risk, a lower speed limit should be set on the main roads to counteract this. Moreover, certain types of intersections are problematic for long vehicles – especially roundabouts and particularly with interaction with cyclists.

These vehicles can also use the space for vulnerable users during their turning manoeuvres – their wheels will be on the road, but part of the vehicle can end up over pavements or cycle paths.

While certain advanced safety technologies, such as a new generation of blind spot detection systems, could mitigate some risks, there is no evidence that the above issues can be solved by currently available technology in a way that would mitigate sufficiently all the risks of longer and heavier vehicles.

ETSC Recommendation

- Do not modify the Directive to allow LHVs to circulate across national borders in the EU.

Modal Shift from road to rail?

ETSC is concerned that the free movement of Longer and Heavier Vehicles would lead to such

¹⁸ ETSC Position on Longer Heavier Vehicles (2011) <http://archive.etsc.eu/documents.php-did=3.html>

a 'reverse modal shift' to road.¹⁹ This would in turn mean more trucks on the road and a rise in road collisions and road deaths and injuries.

ETSC Recommendation

- Do not modify the Directive to allow LHVs to circulate across national borders in the EU due to risk of hampering freight shifting from rail or inland waterways to road.

Enforcement

Measures to ensure the consistency and effectiveness of checks on vehicles across the EU are included. This is to address infringements related to overloaded vehicles. At present, enforcement of the rules still varies significantly between Member States in terms of the number of controls, effectiveness in detecting infringements, control tools and practices.

The 2015 revision included improvements for controlling and detecting overload infringements and introducing the principles of co-liability of shippers and hauliers. The revision proposes minimum requirements for the number and types of controls to be carried out including at night-time. The Weights and Dimensions Directive proposal also links into the current TEN-T Regulation proposal which also makes the installation of weighing mechanisms in road infrastructure mandatory for the TEN-T network.

Also within the enforcement realm, the proposal includes the idea that Member States should be encouraged (but not mandated) to establish Intelligent Access Policy schemes. These schemes would ensure compliance with rules on the maximum authorised weights and dimensions. The schemes should help to ensure that the right vehicle with the right cargo, operates on the right road, and at the right time to secure minimum impact on environment, infrastructure, human health and safety, and society.

Main Implications for Road Safety and ETSC Recommendations

ETSC welcomes the measures in the proposal to improve enforcement with new minimum requirements for the number and types of controls to be carried out and the introduction of Weight-in-Motion systems (through the TEN-T Regulation).

According to Directive 2014/47/EC on roadside technical inspections, 5% of the total number of HDVs registered in the EU should undergo roadside inspections every year. This target is often missed. Technical inspection services have lost personnel and capacity in the past decade across the EU, even as demand for transport services has increased. To help make more efficient use of the remaining resources, checks should target repeat offenders who may pose a higher risk.

ETSC Recommendations

- Support the increased deployment of Weight-in-Motion technology.
- Support the mandatory introduction of Intelligent Access Policy Scheme.

¹⁹ <https://www.cer.be/cer-positions/orientation-on-weights-dimensions-of-road-vehicles>

FOR FURTHER INFORMATION

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The European Transport Safety Council (ETSC) is a Brussels-based independent non-profit making organisation dedicated to reducing the numbers of deaths and injuries in transport in Europe.