

Operating high-productivity freight vehicles in Victoria

Information sheet

November 2023



Introduction

To simplify putting a high-productivity freight vehicle (HPFV) on the road, Victoria has a series of reference designs.

A HPFV is a vehicle that exceeds 26m and/or has a gross combination mass (GCM) of more than 68.5t. Quad-axle semi-trailers that exceed 46t GCM and split-axle semi-trailers that exceed 43.5t GCM are also classified as HPFVs.

Victoria has a gazetted network for reference vehicles. Operators of vehicles that meet the requirements of a reference design do not require a permit to travel on these routes.

This information sheet is intended to equip current and prospective HPFV operators with the information they need to operate a HPFV in Victoria.

Key requirements to operate a reference design vehicle

Victoria's HPFV reference designs align with Performance Based Standards (PBS) in accordance with Table 1 and are required to be:

- Fitted with an in-vehicle GPS device accredited under the Intelligent Access Program (IAP) or Telematics Monitoring Application (TMA)
- Fitted with a category B or C certified on-board mass (OBM) system integrated with TMA¹.
- Fitted with an anti-lock braking system (ABS) on all axles (excluding convertor dolly axles)
- Fitted with road-friendly suspension in accordance with Vehicle Standards Bulletin 11
- Compliant with ADR 80/02 (post-2007 prime movers only).

Table 1 PBS requirements for reference designs

Reference design	PBS level requirement
PBS Level 3A AB-Triple up to 36.5m (general freight)	PBS Level 3
PBS Level 3A AB-triple up to 36.5m (volumetric)	PBS Level 3
PBS Level 3A B-triple up to 36.5m (general freight)	PBS Level 3
PBS Level 3A B-triple up to 36.5m (volumetric)	PBS Level 3
PBS Level 3A A-double up to 36.5m	PBS Level 3
PBS Level 3A over 30m (mass- general freight)	PBS Level 3
PBS Level 3A over 30m quad-quad B-double (general freight)	PBS Level 3
PBS Level 3A over 30m quad-tri B-double (mass)	PBS Level 3
PBS Level 3A Over 30m (mass – volumetric)	PBS Level 3
PBS Level 2B (mass-general freight)	PBS Level 2
PBS Level 2B quad-quad B-double (mass)	PBS Level 2
PBS Level 2B quad-tri B-double (mass)	PBS Level 2
PBS Level 2B (mass-volumetric)	PBS Level 2
PBS Level 2B cubic	PBS Level 2
PBS quad semi-trailer	NA ²
PBS Level 2A (mass-volumetric)	PBS Level 2



1. Except for multi combinations operating at up to 68.5t GCM, quad-axle semi-trailers at up to 46t GCM and split-axle semi-trailers at up to 43.5t GCM.
 2. Quad semi-trailers are PBS Level 1 in regard to safety and geometry but access is determined by the mass of the combination.

Mass and dimension limits

Maximum dimensions

The maximum height of Victoria's reference designs is 4.6m. The maximum width is 2.5m. Maximum lengths are detailed in Appendix 1.

Axle group mass limits

Axle group limits for reference designs vary depending on the vehicle's configuration and whether it is operating under general mass limits (GML) or higher mass limits (HML).

Further information on HML can be found at <https://www.nhvr.gov.au/road-access/mass-dimension-and-loading/higher-mass-limits>

Axle limits are aligned with Heavy Vehicle National Law (HVNL). Table 2 details the requirements for operating under GML or HML.

Table 2 Axle group mass limits

Axle configuration	GML	HML
Steer axle	6.0t	6.0t
Steer axle ³	6.5t	6.5t
Drive-tandem	16.5t	17.0t
Tri-axle group ⁴	20.0t	22.5t
Quad-axle group	20.0t	27.0t



3. Provided the prime mover complies with the requirements set out in Schedule 1 of the Heavy Vehicle (Mass, Dimension and Loading) National Regulations.

4. PBS 3A A-double (up to 36.5m) reference vehicles 2 and 4 at 85.5t GCM are limited to tandem axle group limits of 16.5t GML and 17.0t HML on the tri-dolly group



Gross combination mass limits

In addition to load limits for each axle group, a vehicle must not exceed GCM limits. These limits are detailed in Table 4.

Table 3 GCM limits

Reference design	GCM
PBS Level 3A AB-Triple up to 36.5m (general freight)	113.5t
PBS Level 3A AB-triple up to 36.5m (volumetric)	113.5t
PBS Level 3A B-triple up to 36.5m (general freight)	91.0t
PBS Level 3A B-triple up to 36.5m (volumetric)	91.0t
PBS Level 3A A-double up to 36.5m	85.5t ⁴
PBS Level 3A over 30m (mass-general freight)	91.0t
PBS Level 3A over 30m quad-quad B-double (general freight)	77.5t
PBS Level 3A over 30m quad-tri B-double (mass)	73.0t
PBS Level 3A Over 30m (mass-volumetric)	91.0t
PBS Level 2B (mass-general freight)	91.0t
PBS Level 2B quad-quad B-double (mass)	77.5t
PBS Level 2B quad-tri B-double (mass)	73.0t
PBS Level 2B (mass-volumetric)	91.0t
PBS Level 2B (cubic)	68.5t
PBS quad semi-trailer	50.5t
PBS Level 2A (mass-volumetric)	74.5t

Further requirements

Performance Based Standards

Reference designs must meet PBS. The safety-related standards in PBS address aspects of vehicle performance including acceleration, braking, rollover stability, high-speed dynamic stability, low-speed turning capability and general on-road tracking behaviour. The infrastructure-related standards address the vehicle's impact on road pavements and bridge structures.

The standards can be viewed at [The Standards | NHVR](https://www.nhvr.gov.au/the-standards)

More information on PBS is available in the information sheet *Operating a Performance-Based Standards vehicle in Victoria* on the Department of Transport website.

Routes for reference designs

Vehicles with a design that meets a reference design detailed in the Appendix can only operate on the road network specific to its PBS level.

Victoria's heavy vehicle networks have been developed with a focus on primary freight routes connecting the state's four commercial ports, key interstate links and major freight-generating areas.

The networks can be viewed at <https://www.vicroads.vic.gov.au/business-and-industry/heavy-vehicle-industry/heavy-vehicle-map-networks-in-victoria/cl2-pbs-hpfv>

IAP and TMA

Operators must provide route compliance assurance by participating in TMA or IAP using either a certified in-vehicle unit or the operator's existing telematics system.

IAP and TMA are certified vehicle-tracking systems using telematics to ensure heavy vehicles adhere to approved routes at approved times.

Further information about IAP and TMA is available at <https://tca.gov.au/>

Smart OBM

Smart OBM is used to ensure the mass carried by a vehicle is within a range of compliance.

Further information about Smart OBM is available at

<https://www.vicroads.vic.gov.au/business-and-industry/heavy-vehicle-industry/heavy-vehicle-road-safety/new-telematics-requirements-for-hpfv-and-mobile-cranes>

Signage

All HFFV combinations between 22m and 30m in length must display a long vehicle warning sign at the rear. Vehicles over 30m must display a road train warning sign at the front and rear.



Further information on signage can be found at <https://www.nhvr.gov.au/files/201806-0736-vsg19-vehicle-warning-signs.pdf>



Symbols specific to the PBS Level 3 36.5m A-double network

To cater for the low-speed swept path (LSSP) width of 36.5m combinations, additional information has been added to the PBS Level 3 network maps.

Map symbols have been introduced to denote:

-  intersections where turns do not provide LSSP access up to 10.6m
-  rest areas that can accommodate parking for 36.5m vehicles

What if my design doesn't match one of the reference vehicles?

Combinations that do not match a reference vehicle require a permit. Combinations that exceed specified axle limits may require an assessment of the nominated routes. This may incur costs.

Operators seeking to design or register a combination that does not fit within one of the reference designs are advised to read the industry guide *Operating a Performance-Based Standards vehicle* in Victoria on the Department of Transport and Planning website.

What about combinations longer than 36.5m?

Access requests for combinations longer than 36.5m will be considered. At a minimum:

- The combination must meet PBS Level 3
- The combination must meet the TMA requirement
- The combination must meet the Smart OBM requirement
- The requested route must not include rail level crossings
- The requested route is restricted to arterial roads and essential last-kilometre access

A structural assessment will be undertaken at the operator's cost.

Do I need a permit to cross rail tracks?

Operators of vehicles exceeding 26.0m in length which cross at-grade rail or tram tracks must apply for an over-dimensional load (ODL) rail permit. Permits can take up to 15 business days to process.

Further information on obtaining an ODL rail permit is available at <https://transport.vic.gov.au/getting-around/roads/over-dimensional-load-permits-for-travel-across-railways-and-tramways>

My vehicle complies with one of the reference vehicles. Can I apply for more mass?

A HPFV design that complies with a reference vehicle will not be assessed for a higher GCM on a network specific to that reference design.

My vehicle is an A-double with a tri-axle dolly. Can I operate at 91.0 tonnes?

Reference vehicle designs 2 and 4 PBS level 3A A-double (up to 36.5m) are limited to 85.5t GCM.

New reference designs catering for higher GCM A-doubles are in development.

Can existing road trains access the PBS Level 3 36.5m A-double network?

Road trains approved to operate in Victoria's north west must meet PBS and the requirements of a HPFV to gain access to the 36.5m A-double network south of Ouyen and Swan Hill.

Do I need an NHVR permit?

Vehicles operating under the National Class 2 Performance Based Standards (High Productivity) Authorisation Notice 2022 (No.3) do not require a permit to operate on the road network specific to its PBS level. The notice can be viewed at <https://www.legislation.gov.au/Details/C2022G01196>

Vehicles that do not meet the requirements of the notice require a permit for travel. Permits are also required for any part of the network not gazetted for the vehicle.

I have an extension on fitting Smart OBM. Can I operate without a permit?

No. Vehicles operating under an extension to the Smart OBM deadline of 1 November 2021 are not covered by the gazette and require a permit for travel.



Access to the Port of Melbourne

Transport operators of B-triples and/or AB-triples seeking access to the Port of Melbourne must apply for a Class 2 access permit. Permits to move containerised freight will be declined where rail is a viable option.

Are rented HPFV combinations still required to have Smart OBM and IAP or TMA?

All HPFV combinations are required to meet the requirement to have TMA or IAP, regardless of rental arrangements.

Where the whole combination is rented, including the prime mover, Smart OBM is still a requirement for HPFVs operating above 68.5t (or above 46t for quad-axle semi-trailers and 43.5t for split-axle semi-trailers).

Where only the trailers are being rented, Smart OBM is not required, provided the rental arrangement does not exceed 12 months and is not renewed. For longer and ongoing rental arrangements, Smart OBM is required.

My HPFV combination has broken down. What can I do?

Operators of HPFVs should have a recovery plan in place with a heavy vehicle towing company which can recover the combination using suitable routes.

Where a prime mover used in a HPFV combination suffers a breakdown and the trailers need to be moved by an alternative prime mover, the transport operator should:

- use a prime mover that meets the relevant reference vehicle or permit requirements; or
- break the combination down to move the trailers in smaller, compliant combinations.

Where the above cannot be met, an alternative prime mover can be used to move the trailers, provided:

- The alternative prime mover is as close as possible to the reference vehicle or permit specifications;
- The alternative prime mover's Smart OBM system is integrated with the trailers (where feasible)

The alternative prime mover can be used to:

- deliver any goods on board at the time the breakdown occurred
- recover the trailers to the fleet depot or another site that suits the combination operator, regardless of distance.

The responsibility lies with the transport operator to demonstrate:

- The need for the recovery (e.g. evidence of breakdown)
- Why they were unable to use a matching prime mover
- Why it was not possible and/or practical to break the combination into smaller, compliant combinations
- Why Smart OBM was unable to be used
- Compliance with the requirements of the exemption.

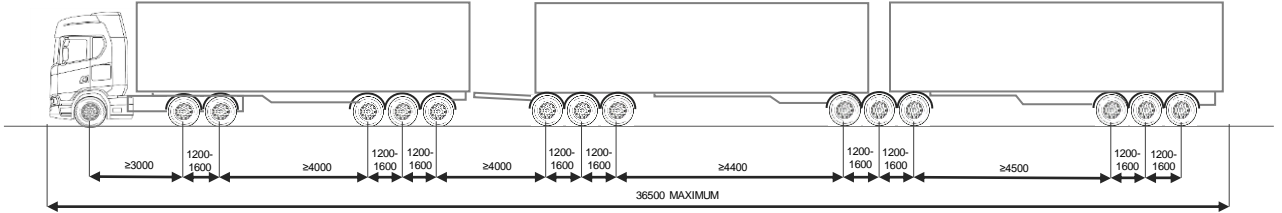
Need more information?

Contact the DTP Heavy Vehicles Team at: heavyvehicles@transport.vic.gov.au

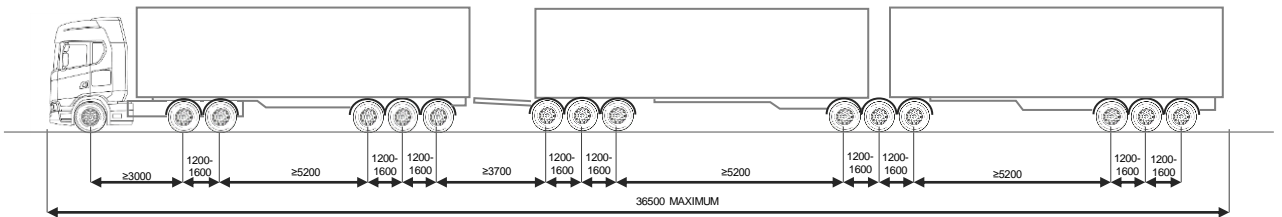
Appendix

Axle spacings for reference vehicles

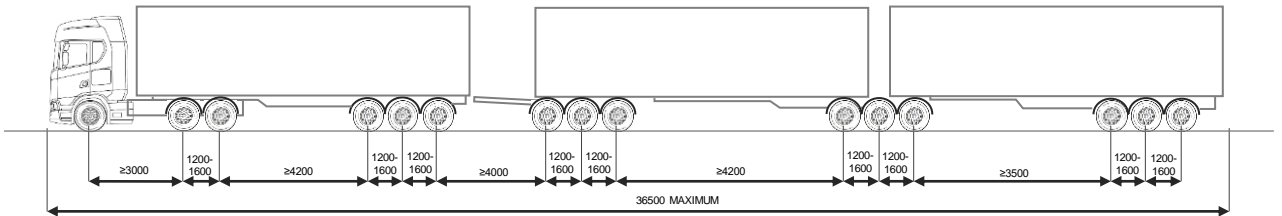
PBS Level 3A AB-triple up to 36.5m (general freight) Reference Vehicle 1



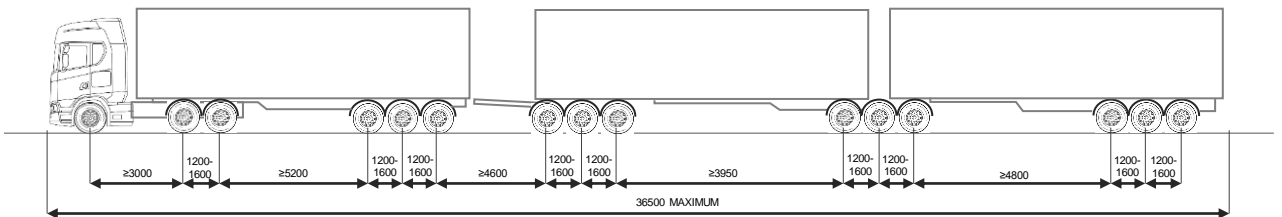
PBS Level 3A AB-triple up to 36.5m (general freight) Reference Vehicle 2



PBS Level 3A AB-triple up to 36.5m (general freight) Reference Vehicle 3

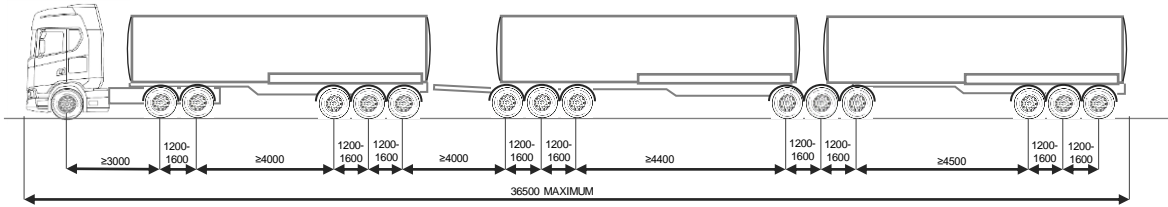


PBS Level 3A AB-triple up to 36.5m (general freight) Reference Vehicle 4

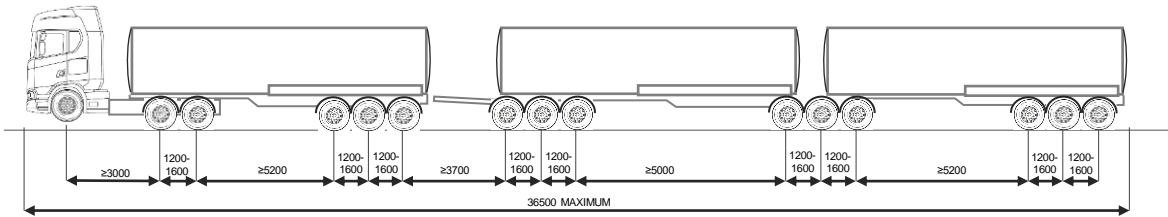


1. Not to scale. All measurements in millimetres.

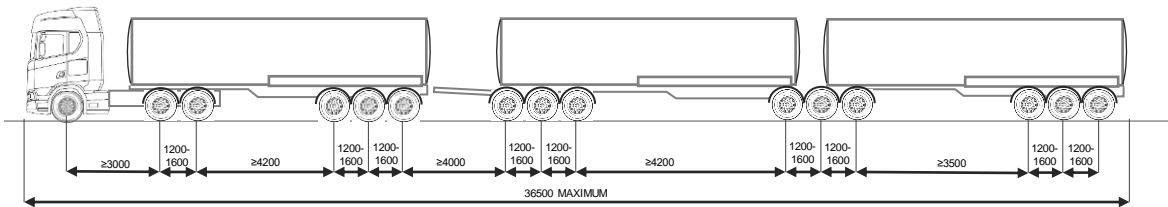
PBS Level 3A AB-triple (volumetric) Reference Vehicle 1



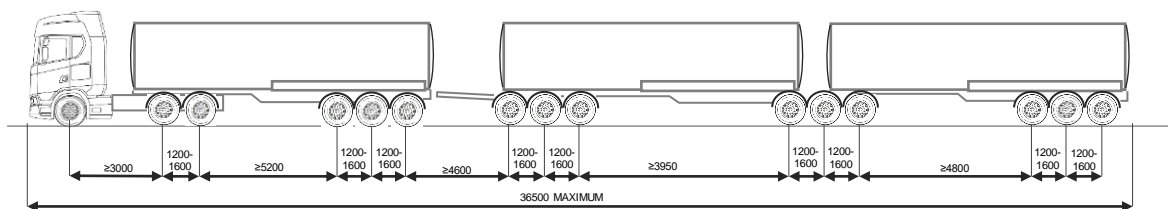
PBS Level 3A AB-triple (volumetric) Reference Vehicle 2



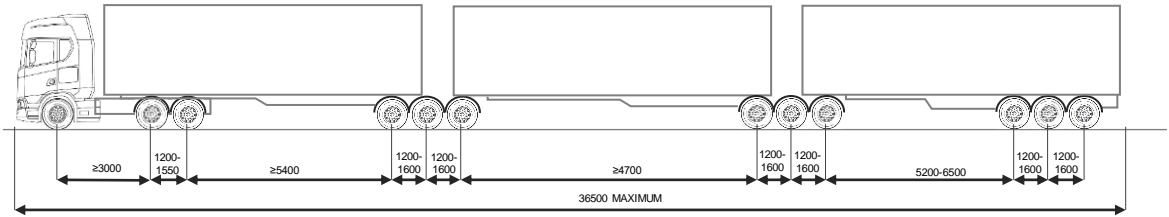
PBS Level 3A AB-triple (volumetric) Reference Vehicle 3



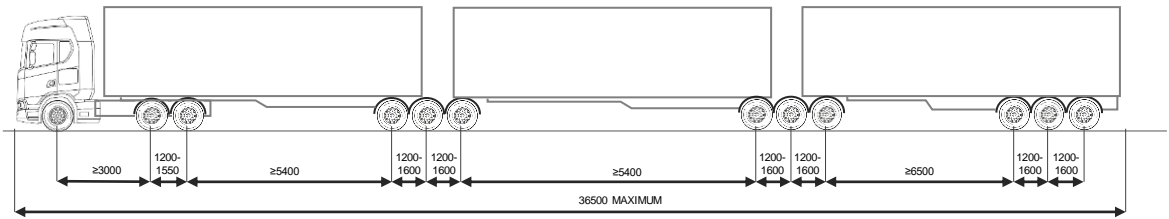
PBS Level 3A AB-triple (volumetric) Reference Vehicle 4



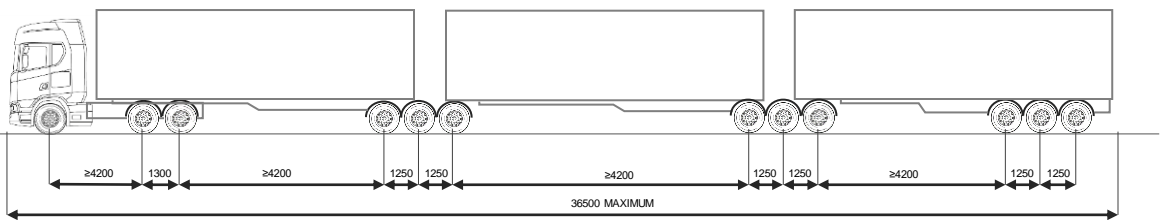
PBS Level 3A B-triple (general freight) Reference Vehicle 1



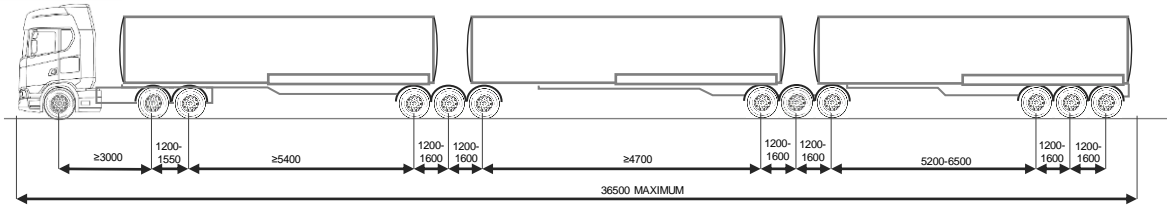
PBS Level 3A B-triple (general freight) Reference Vehicle 2



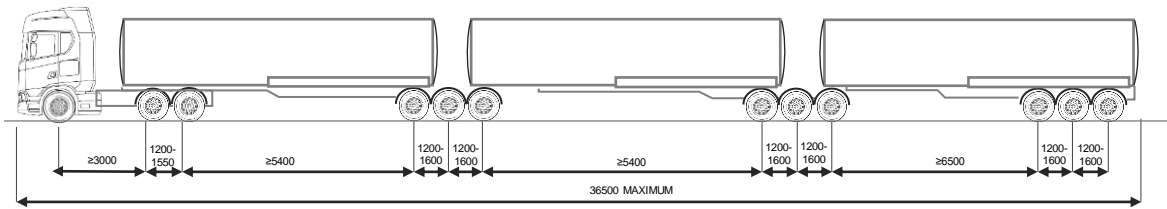
PBS Level 3A B-triple (general freight) Reference Vehicle 3



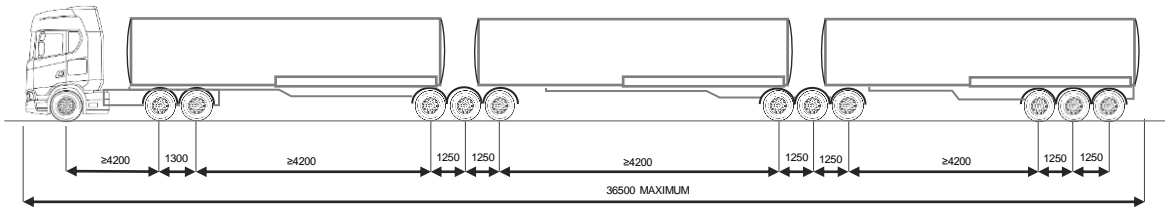
PBS Level 3A B-triple (volumetric) Reference Vehicle 1



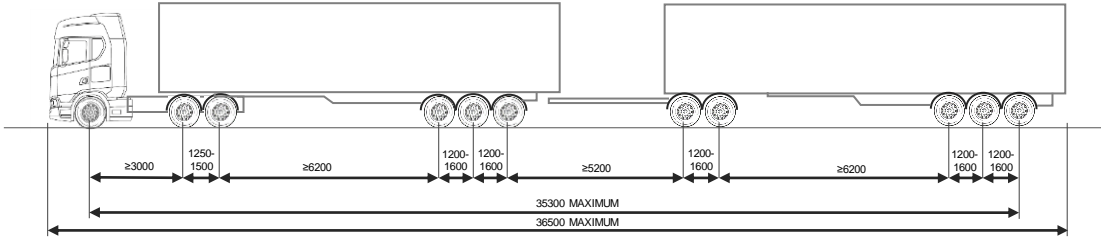
PBS Level 3A B-triple (volumetric) Reference Vehicle 2



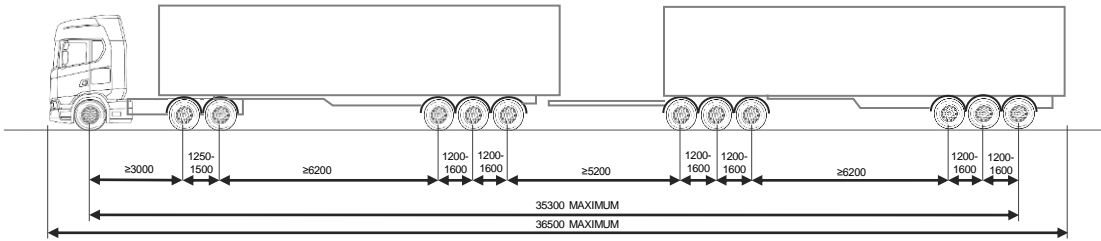
PBS Level 3A B-triple (volumetric) Reference Vehicle 3



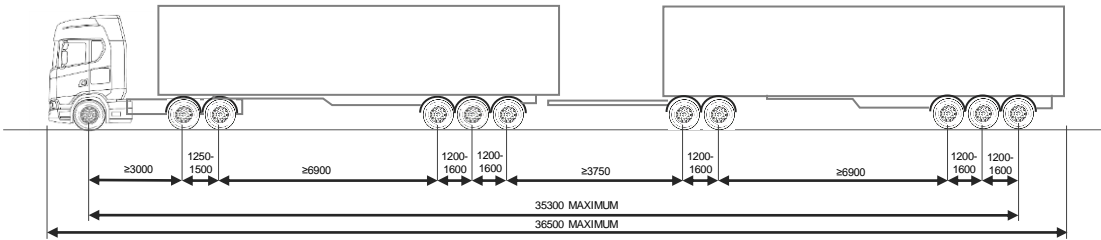
PBS Level 3A A-double up to 36.5m – Reference Vehicle 1



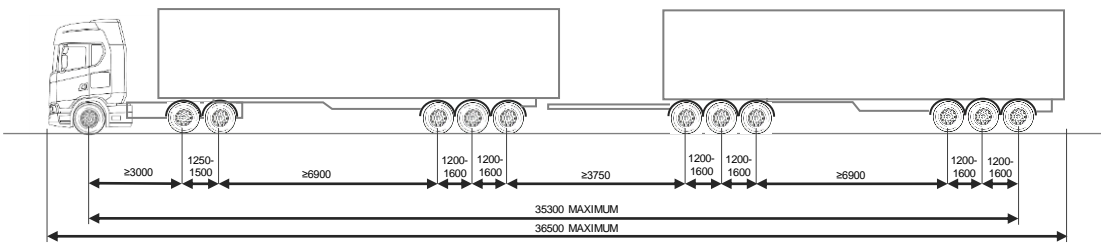
PBS Level 3A A-double up to 36.5m – Reference Vehicle 2



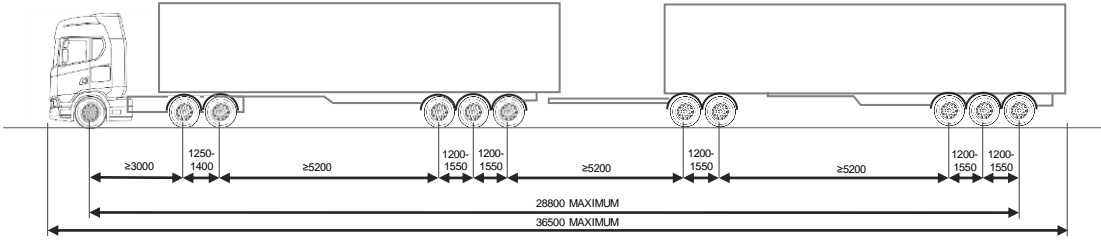
PBS Level 3A A-double up to 36.5m – Reference Vehicle 3



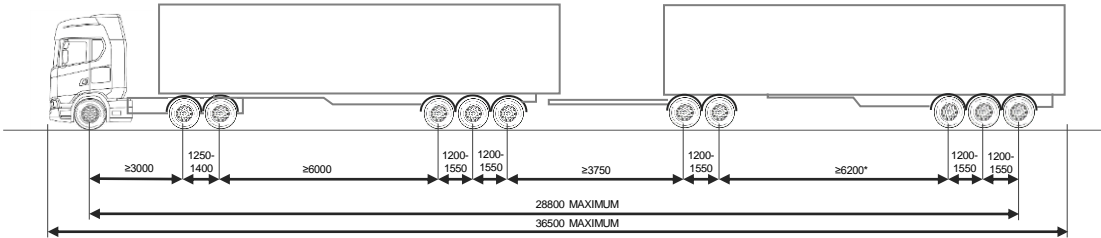
PBS Level 3A A-double up to 36.5m – Reference Vehicle 4



PBS Level 3A A-double (mass) over 30.0m – Reference Vehicle 1

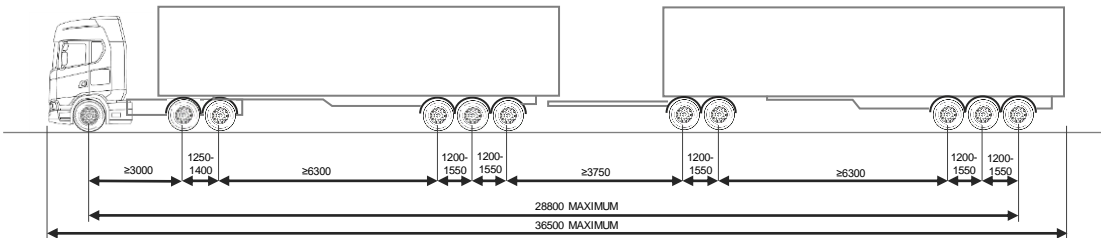


PBS Level 3A A-double (mass) over 30.0m – Reference Vehicle 2

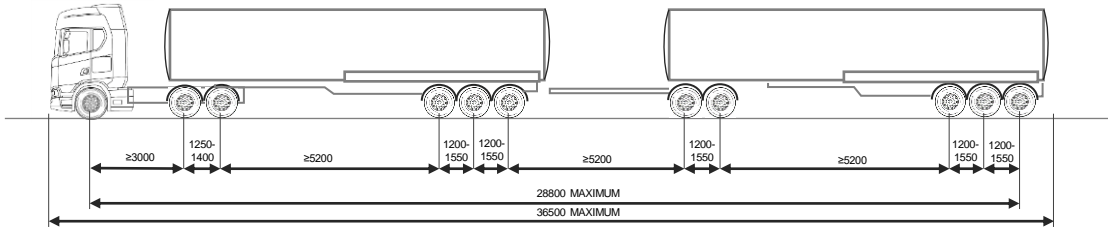


*May reduce to 6125 should all other measurements comply

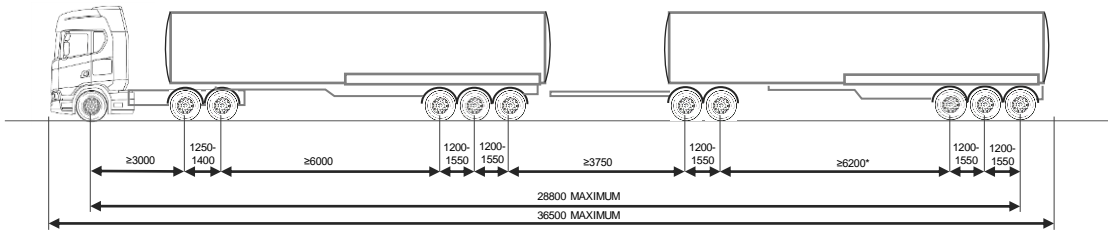
PBS Level 3A A-double (mass) over 30.0m – Reference Vehicle 3



PBS Level 3A A-double (mass-volumetric) over 30.0m – Reference Vehicle 1

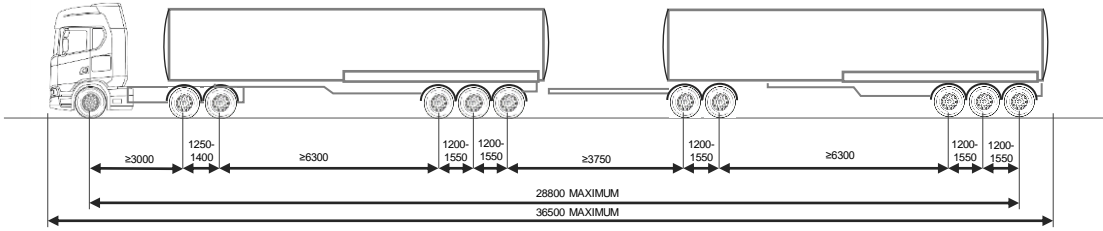


PBS Level 3A A-double (mass-volumetric) over 30.0 metres – Reference Vehicle 2

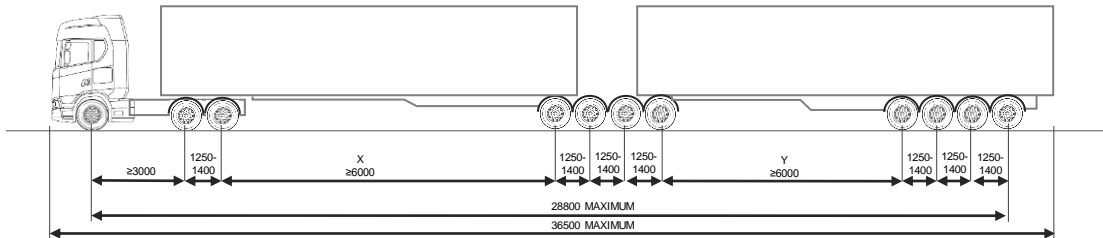


*May reduce to 6125 should all other measurements comply

PBS Level 3A A-double (mass-volumetric) over 30.0m – Reference Vehicle 3

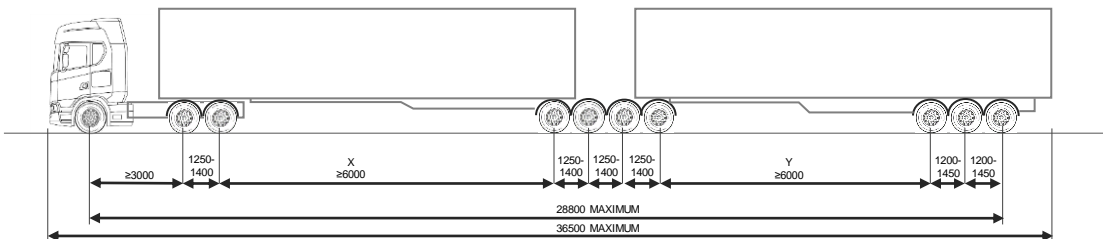


PBS Level 3A Quad-quad B-double (mass) over 30.0m



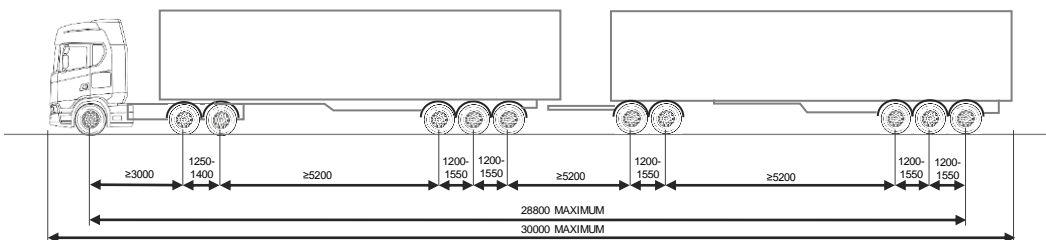
*X plus Y must be greater than 13m

PBS Level 3A quad-tri B-double (mass) over 30.0m

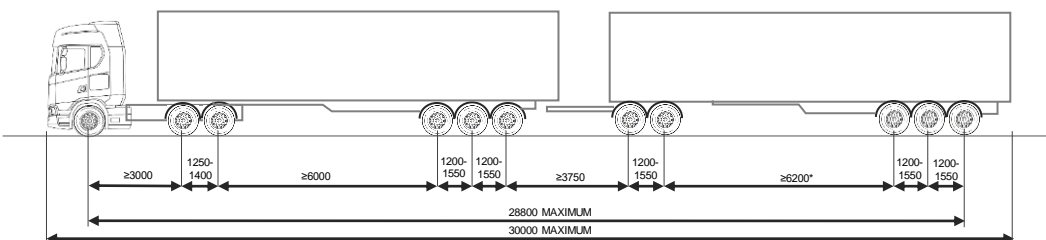


*X plus Y must be greater than 13m

PBS Level 2B A-double (mass-general freight) 30.0 metres – Reference Vehicle 1

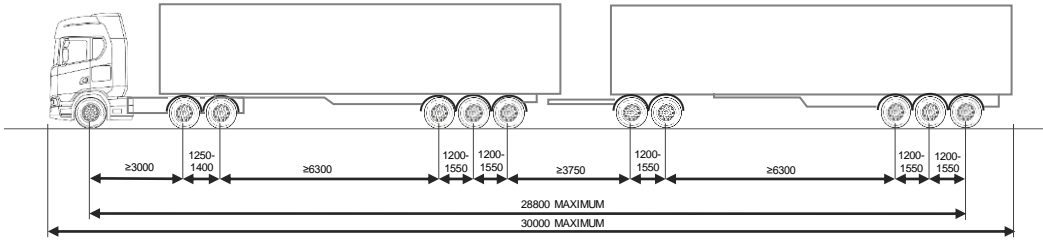


PBS Level 2B A-double (mass-general freight) 30.0 metres – Reference Vehicle 2

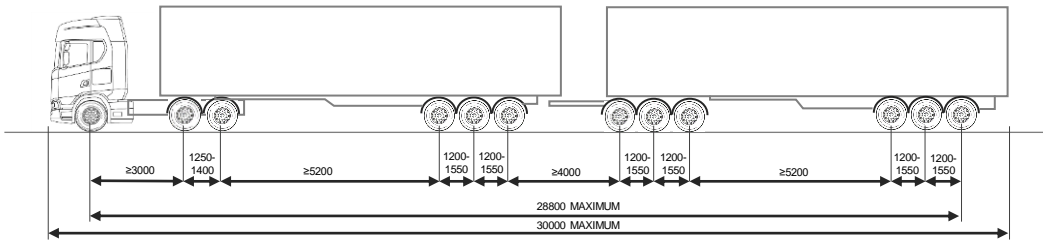


*May reduce to 6125 should all other measurements comply

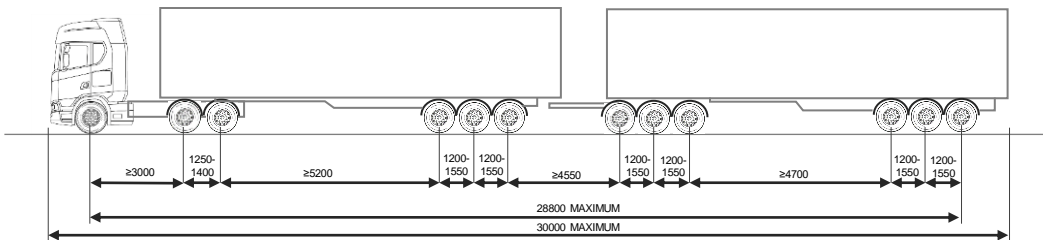
PBS Level 2B A-double (mass-general freight) 30.0 metres Reference Vehicle 3



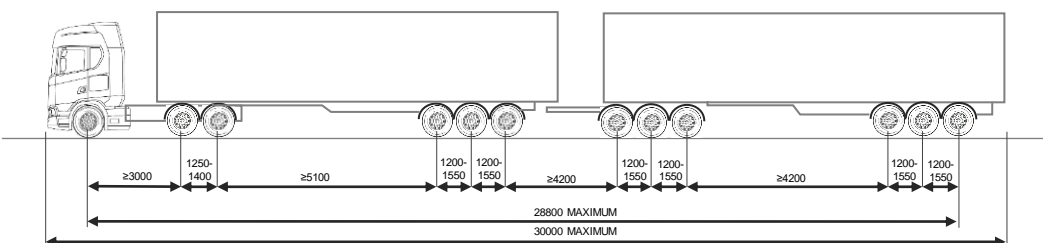
PBS Level 2B (mass-general freight) 30.0 metres Reference vehicle 4



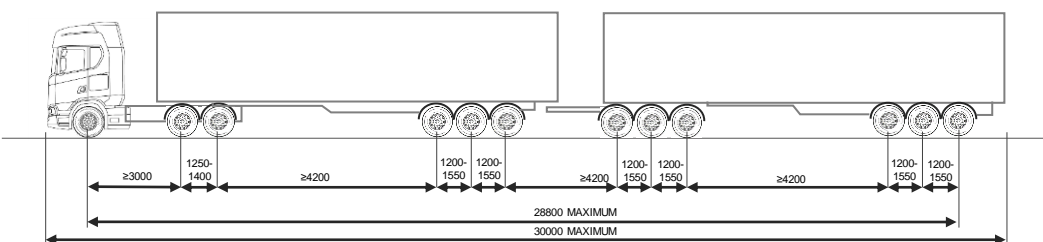
PBS Level 2B (mass-general freight) 30.0 metres Reference vehicle 5



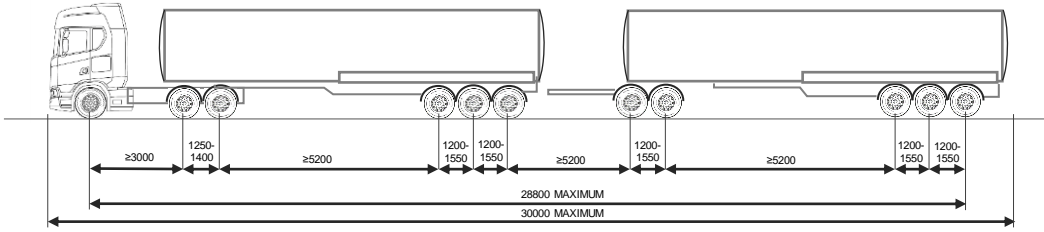
PBS Level 2B (mass-general freight) 30.0 metres Reference vehicle 6



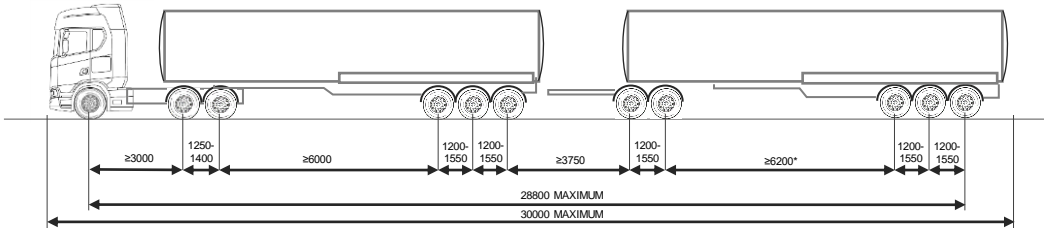
PBS Level 2B (mass-general freight) 30.0 metres Reference vehicle 7



PBS Level 2B (mass-volumetric) Reference vehicle 1

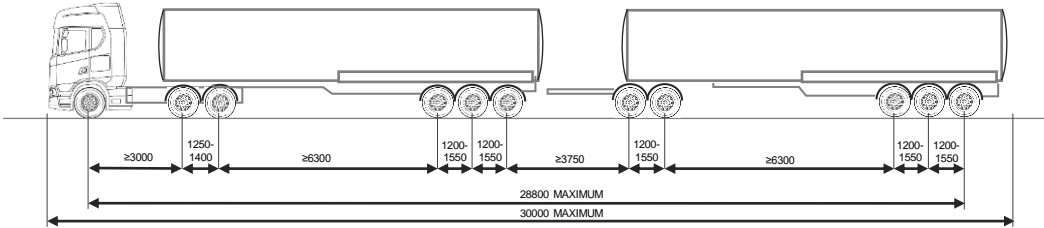


PBS Level 2B (mass-volumetric) Reference vehicle 2

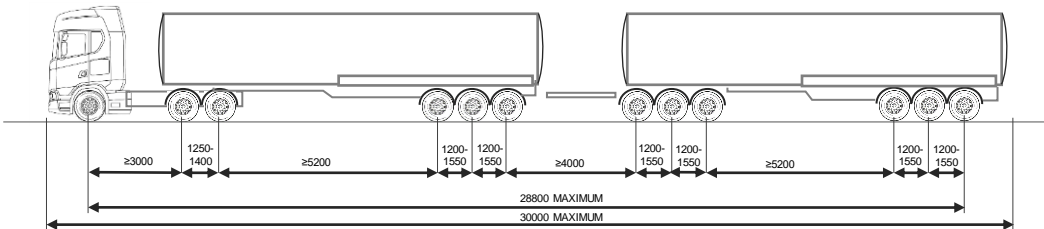


*May reduce to 6125 should all other measurements comply

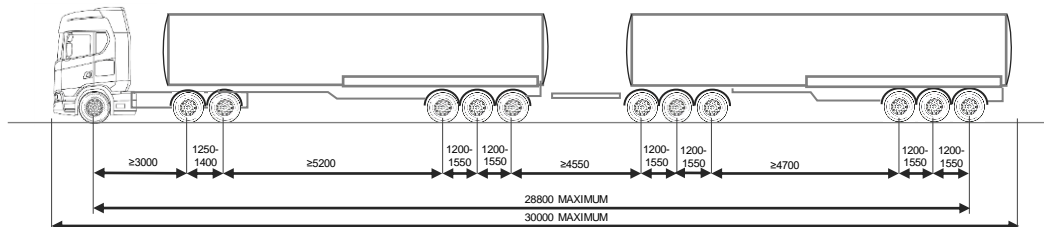
PBS Level 2B (mass-volumetric) Reference vehicle 3



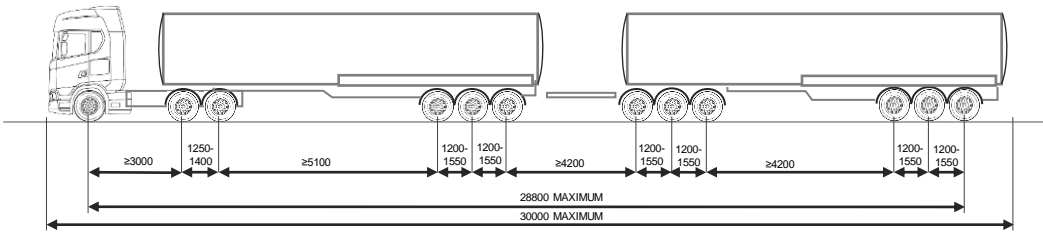
PBS Level 2B (mass-volumetric) Reference vehicle 4



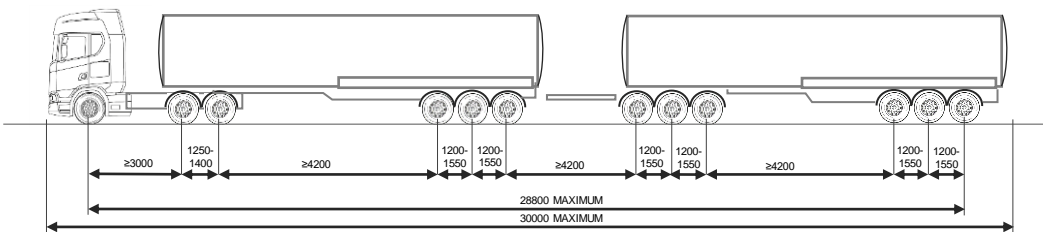
PBS Level 2B (mass-volumetric) Reference vehicle 5



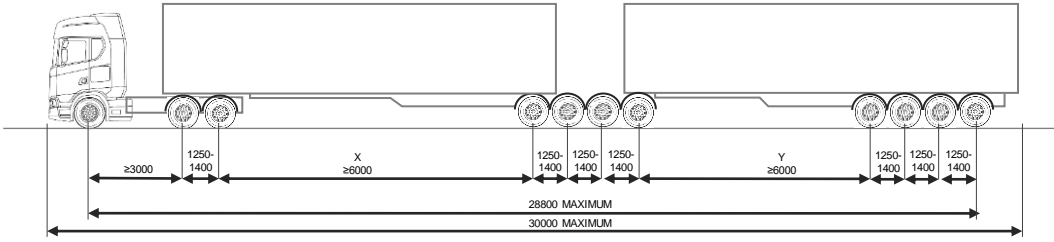
PBS Level 2B (mass-volumetric) Reference vehicle 6



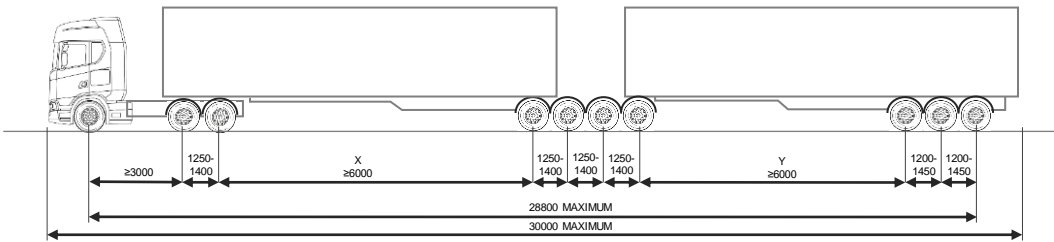
PBS Level 2B (mass-volumetric) Reference vehicle 7



PBS Level 2B Quad-quad B-double (mass)

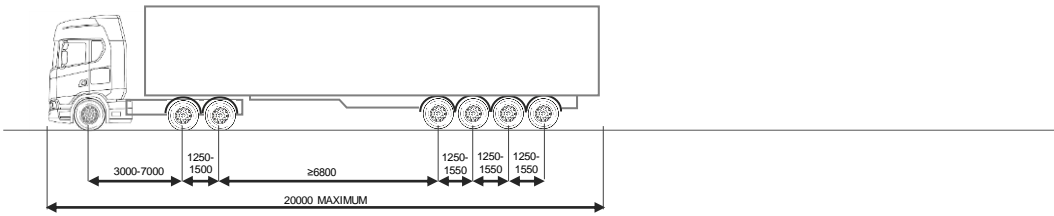


PBS Level 2B Quad-tri B-double (mass)

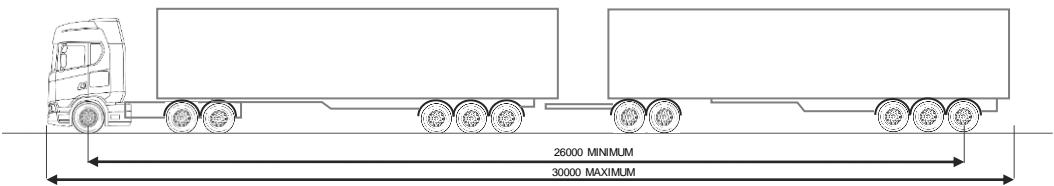


*X plus Y must be greater than 13m

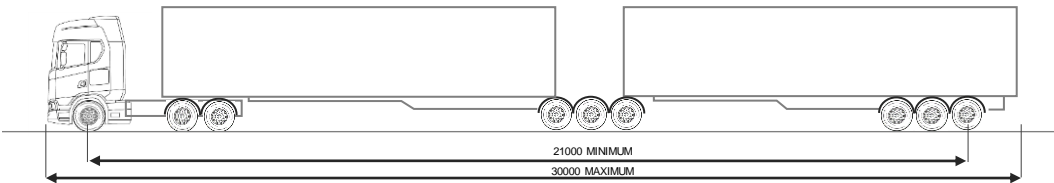
PBS Quad semi-trailer



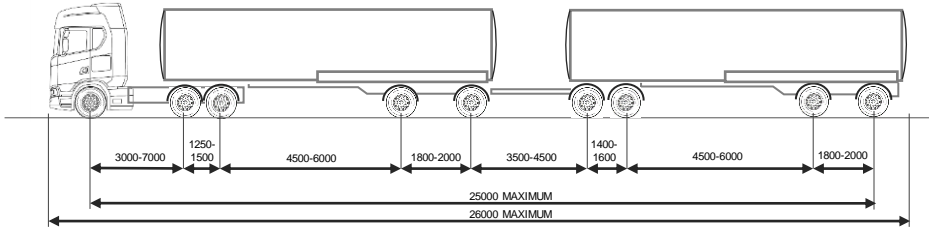
PBS Level 2B A-double (cubic)



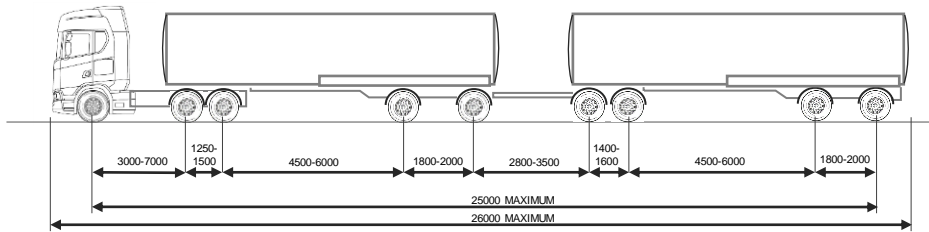
PBS Level 2B B-double (cubic)



PBS Level 2A (mass-volumetric) Reference vehicle 1



PBS Level 2A (mass-volumetric) Reference vehicle 2



PBS Level 2A (mass-volumetric) Reference vehicle 3

