# Victoria's High Productivity Freight Vehicle Network

## Information Sheet – February 2023

## Introduction

A high-productivity freight vehicle (HPFV) is a heavy vehicle combination that exceeds 26 metres and/or has a gross combination mass (GCM) of more than 68.5 tonnes. High productivity semi-trailers that exceed 46 tonnes GCM up to a maximum mass of 50.5 tonnes GCM are also classified as HPFVs.

Victoria has developed a number of HPFV reference vehicle designs that can operate under the National Class 2 Performance Based Standards (High Productivity) Authorisation Notice 2021 (No.1). These designs can be viewed at the Appendix.

This information sheet is intended to equip heavy vehicle operators with the information they need to operate a HPFV in Victoria.

Enquiries can be directed to heavyvehicles@transport.vic.gov.au

## Key requirements to operate a HPLV

HPFVs must meet Performance Based Standards (PBS) in accordance with Table 1 and be:

- fitted with an in-vehicle GPS device accredited under the Intelligent Access Program (IAP) or Telematics Monitoring Application (TMA). TMA is required for any HPFV heavier than 68.5t GCM, as well as all semi-
- trailer combinations exceeding 46t GCM.
- fitted with a category B or C certified on-board mass (OBM) system that can be integrated with TMA. This requirement applies to any HPFV heavier than 68.5t GCM, as well as all semi-trailer combinations exceeding 46t GCM.
- fitted with an anti-lock braking system (ABS) on all axles (excluding convertor dolly axles)
- fitted with road-friendly suspension in line with Vehicle Standards Bulletin 11
- compliant with ADR 80/02 (post-2007 prime movers only).


| Network | PBS level requirement |
|---|---|
| PBS Level 3A AB-Triple – General Freight (up to 36.5m) | PBS Level 3 |
| PBS Level 3A AB-Triple – Volumetric (up to 36.5m) | PBS Level 3 |
| PBS Level 3A B-Triple – General Freight (up to 36.5m) | PBS Level 3 |
| PBS Level 3A B-Triple – Volumetric (up to 36.5m) | PBS Level 3 |
| PBS Level 3A A-Double (up to 36.5m) | PBS Level 3 |
| PBS Level 3A Mass- General Freight (Over 30m) | PBS Level 3 |
| PBS Level 3A Mass – Quad-Quad B-Double (Over 30m) | PBS Level 3 |
| PBS Level 3A Mass- Quad-Tri B-Double (Over 30m) | PBS Level 3 |
| PBS Level 3A Mass – Volumetric (Over 30m) | PBS Level 3 |
| PBS Level 2B Mass – General Freight | PBS Level 2 |
| PBS Level 2B Mass Quad-Quad B-Double | PBS Level 3 |
| PBS Level 2B Mass Quad-Tri B-Double | PBS Level 3 |
| PBS Level 2B Mass - Volumetric | PBS Level 2 |
| PBS Level 2B Cubic | PBS Level 2 |
| PBS Quad Semi-Trailer | NA[1] |
| PBS Level 2A Mass - Volumetric | PBS Level 2 |

*Table 1 PBS requirements for HPFVs*

1 Quad-Axle 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 dimensions for HPFVs are detailed in table 2.

*Table 2 Maximum dimension limits*

| Network | Height | Width | Length |
|---|---|---|---|
| PBS Level 3A AB-Triple – General Freight (up to 36.5m) | 4.6m | 2.5m | 36.5m |
| PBS Level 3A AB-Triple – Volumetric (up to 36.5m) | 4.6m | 2.5m | 36.5m |
| PBS Level 3A B-Triple – General Freight (up to 36.5m) | 4.6m | 2.5m | 36.5m |
| PBS Level 3A Volumetric – B-Triple (up to 36.5m) | 4.6m | 2.5m | 36.5m |
| PBS Level 3A A-Double (up to 36.5m) | 4.6m | 2.5m | 36.5m |
| PBS Level 3A Mass- General Freight (Over 30m) | 4.6m | 2.5m | 36.5m |
| PBS Level 3A Mass – Quad-Quad B-Double (Over 30m) | 4.6m | 2.5m | 36.5m |
| PBS Level 3A Mass- Quad-Tri B-Double (Over 30m) | 4.6m | 2.5m | 36.5m |
| PBS Level 3A Mass – Volumetric (Over 30m) | 4.6m | 2.5m | 36.5m |
| PBS Level 2B Mass – General Freight | 4.6m | 2.5m | 30.0m |
| PBS Level 2B Mass Quad-Quad B-Double | 4.6m | 2.5m | 30.0m |
| PBS Level 2B Mass Quad-Tri B-Double | 4.6m | 2.5m | 30.0m |
| PBS Level 2B Mass - Volumetric | 4.6m | 2.5m | 30.0m |
| PBS Level 2B Cubic | 4.6m | 2.5m | 30.0m |
| PBS Quad Semi-Trailer | 4.6m | 2.5m | 20.0m |
| PBS Level 2A Mass - Volumetric | 4.6m | 2.5m | 26.0m |

## Axle group mass limits

Axle group limits for HPLVs vary depending on the vehicle's configuration and whether it is operating under general masslimits (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

HPLV axle limits are aligned with Heavy Vehicle National Law(HVNL).

Table 3 details the requirements for a HPFV operating under GML or HML.

*Table 3 Axle group mass limits*

| Axle configuration | GML | HML |
|---|---|---|
| Steer axle | 6.0t | 6.0t |
| Steer axle | 6.5t [2] | 6.5t |
| Drive-tandem | 16.5t | 17.0t |
| Tri-axle dolly | 16.5t | 17.0t[3] |
| Tri-axle group | 20.0t | 22.5t |
| Quad-axle group | 20.0t | 27.0t |

## Gross combination mass limits

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

*Table 4 GCM limits*

| Network | GCM |
|---|---|
| PBS Level 3A AB-Triple – General Freight (up to 36.5m) | 113.5t |
| PBS Level 3A AB-Triple – Volumetric (up to 36.5m) | 113.5t |
| PBS Level 3A B-Triple – General Freight (up to 36.5m) | 91.0t |
| PBS Level 3A B-Triple – Volumetric (up to 36.5m) | 91.0t |
| PBS Level 3A A-Double (up to 36.5m) | 85.5t |
| PBS Level 3A Mass- General Freight (Over 30m) | 85.5t |
| PBS Level 3A Mass – Quad-Quad B-Double (Over 30m) | 77.5t |
| PBS Level 3A Mass- Quad-Tri B-Double (Over 30m) | 73.0t |
| PBS Level 3A Mass – Volumetric (Over 30m) | 85.5t |
| PBS Level 2B Mass – General Freight | 85.5t |
| PBS Level 2B Mass Quad-Quad B-Double | 77.5t |
| PBS Level 2B Mass Quad-Tri B-Double | 73.0t |
| PBS Level 2B Mass - Volumetric | 85.5t |
| PBS Level 2B Cubic | 68.5t |
| PBS Quad Semi-Trailer | 50.5t |
| PBS Level 2A Mass - Volumetric | 74.5t |

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

# Further requirements

## IAP and TMA

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

Both IAP and TMA use tamper-evident GPS devices installed inthe vehicle connected wirelessly to accredited third-party service providers to monitor compliance.

Unless otherwise approved, operators must provide routecompliance assurance by participating in TMA or IAP usingeither a certified in-vehicle unit or the operator's existing telematics system.

Further information about the IAP and TMA is available at http://www.tca.gov.au

## Signage

All HFLV 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.

## Performance Based Standards

HPFVs must be assessed and certified against 16 safety-relatedand 4 infrastructure-related performance standards in order tomeet PBS.

The safety-related standards 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-relatedstandards address the vehicle's impact on road pavements andbridge structures.

More information on PBS is available on the NHVR website.

## On-Board Mass (OBM)

OBM systems measure the mass of axle groups and calculate theGCM of a vehicle. They are used to ensure the mass carried by the vehicle is within a range of compliance.

On 1 November 2021, Victoria introduced a requirement for allHPFVs to be fitted with a category B or C certified OBM system that can be integrated with the IAP or TMA.

Combinations operating on the PBS Level 2B network at up to 68.5t GCM or quad-axle semi-trailers operating at up to 46t GCM are not required to be fitted with OBM.

Further information can be found at https://tca.gov.au/service-offering/on-board-mass-systems/

# Where can HPFVs operate?

A HPFV with a design that meets one of the reference vehicle designs detailed in the Appendix can only operate on the road network specific to its PBS level.

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

The networks expand as assessments are undertaken and bridges and other structures upgraded.

The access status of each route is denoted by its colour. The HPFV network 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

## Symbols specific to the HPFV 36.5m A-double network

To cater for the low-speed swept path (LSSP) width of 36.5m and 42m combinations, additional information has been added to the HPLV 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 HPLV

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

Combinations that do not comply with the maximum axle limitsspecified may require an assessment of the nominated route. This may incur costs.

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

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

Any HPFV that complies with a reference vehicle and is seeking to access to a route that has already been assessed will not be assessed by DoT to determine whether it can achieve more mass than the reference vehicle combinations.

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

Any A-Double combination with a tri-axle dolly is currently limited to 85.5 tonnes on Victoria's HPFV network. DoT is currently undertaking assessment to determine whether these networks can be increased to 91.0t and is expected to be completed by mid 2023.

## What about combinations longer than 36.5m?

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

- The combination must meet PBS level 3 standards
- The combination must meet the requirement for IAP or TMA
- The combination must meet the requirement for Smart OBM
- The requested route must not feature any rail level crossings
- The requested route is restricted to arterial roads and essential last kilometre access to the destinations

DoT will undertake a geometric assessment prior to granting access. DoT will also need to conduct structural assessments for the vehicle for all structures on the requested route at the operator's cost.

## Can existing road trains access the HPFV 36.5m A-double network?

Road trains currently approved to operate in Victoria's north west will be required to obtain PBS approval to gain access tothe HPFV 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 2021 (No.1) do not require a permit to operate on the road network specific to its PBS level.

A permit is required for any access requirement that is not part of the road network specific to a vehicle's PBS level.

Vehicles that do not meet the requirements of the notice, including those vehicles which are operating under an extension to the Smart OBM deadline of 1 November 2021 are not covered by the gazette and still require a permit for all travel.

## What if I am unable to meet the Smart OBM deadline of 1 November 2021?

HPFVs operating above 68.5t (or above 46t for Quad-Axle Semi-Trailers) that cannot meet the Smart OBM requirement by 1 November 2021 are able to apply for an extension to this deadline. Extensions are granted to allow HPFV operators to continue operating whilst in the process of arranging fitment of Smart OBM to their HPFV fleet.

Vehicles that are operating under an extension to this deadline are still considered to be operating under permit as they do not meet the requirements of the gazette.

In order to arrange an extension, please contact heavyvehicles@transport.vic.gov.au

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

Where the whole combination is rented, including the prime mover, Smart OBM is still a requirement HPFVs operating above 68.5t (or above 46t for Quad-Axle Semi-Trailers).

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

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

## Do I need a permit to cross rail tracks?

Operators of HPFV that exceed 26.0 metres in length and crossat-grade rail or tram tracks must apply for an over-dimensionalload (ODL) rail permit.

Permits can take up to 15 business days to process.

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

## Can B-Triples and AB-Triples access the Port of Melbourne?

Transport operators seeking access to the Port of Melbourne with B-Triple and/or AB-Triple combinations will need to apply for a Class 2 access permit. Permits to move containerised freight where rail is a viable option, will be declined. All other movements will be reviewed on a case-by-case basis within the standard guidelines.

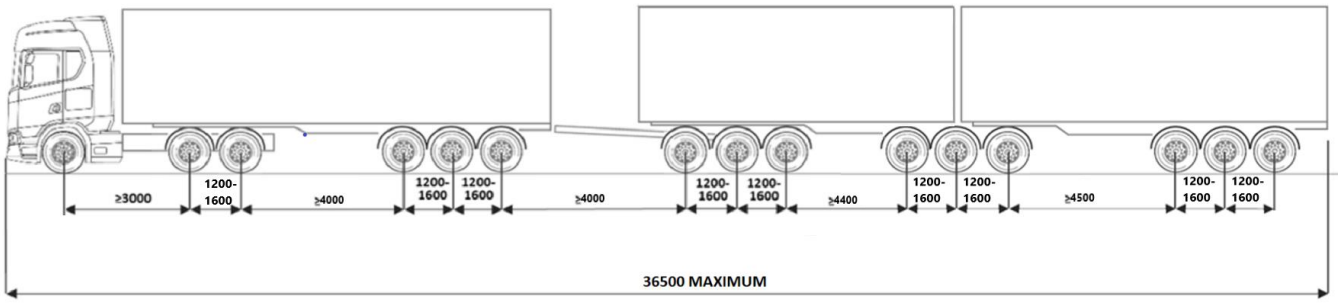
which would not only lead to significantly higher road wear but also significantly higher impact on structures across the state.

Combinations that do not comply with the maximum tare weights specified may require an assessment of the nominated route. This may incur costs.

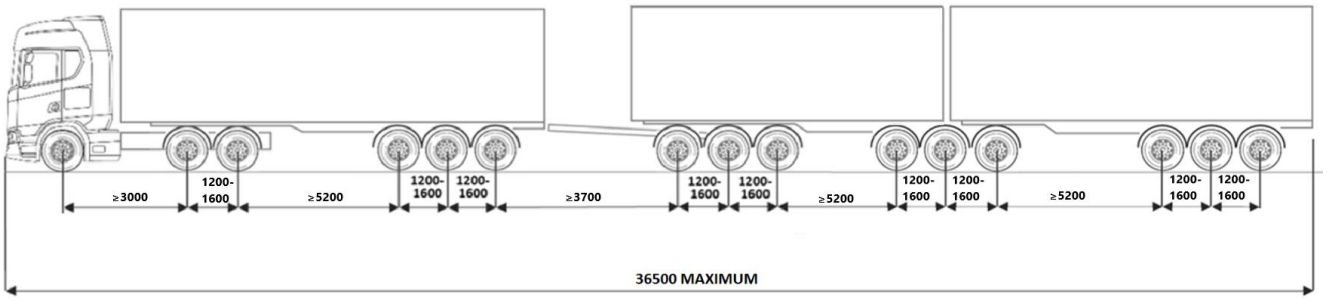
# Appendix

## Reference vehicle designs[3] and axle spacings

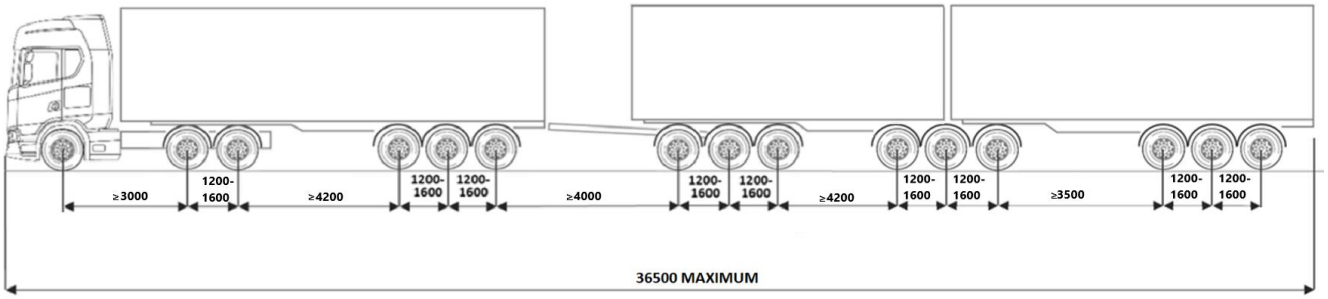
PBS Level 3A AB-Triple – General Freight Reference Vehicle 1



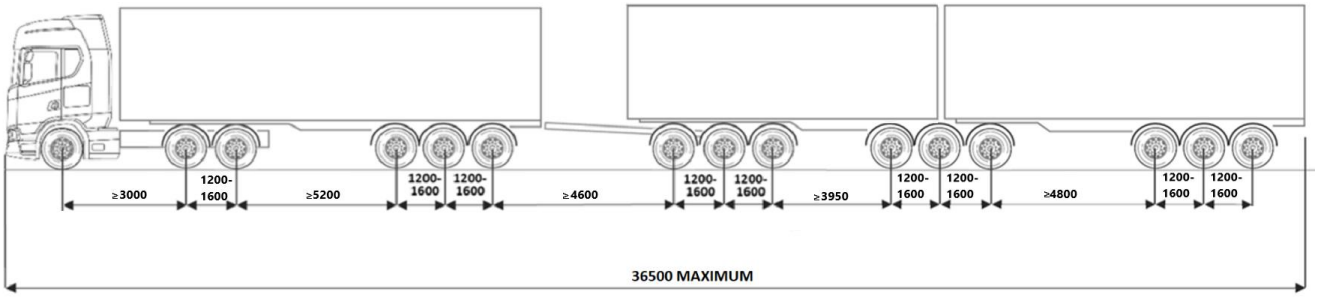

PBS Level 3A AB-Triple – General Freight Reference Vehicle 2



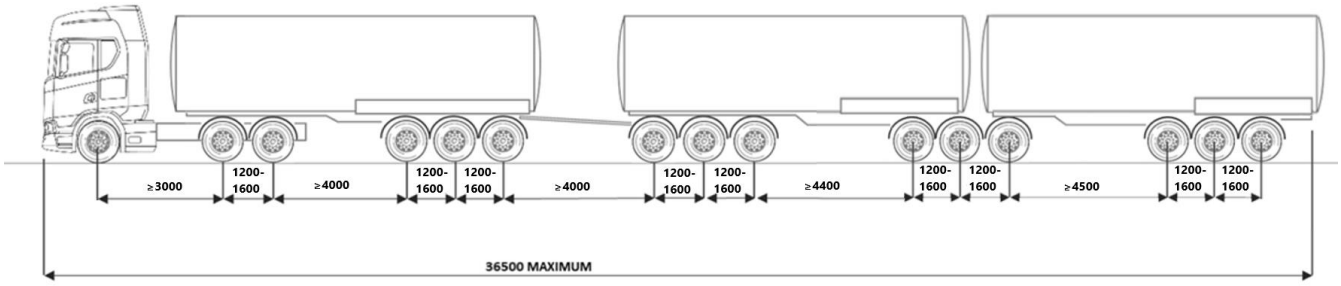

PBS Level 3A AB-Triple – General Freight Reference Vehicle 3




PBS Level 3A AB-Triple – General Freight Reference Vehicle 4



PBS Level 3A AB-Triple – Volumetric Reference Vehicle 1

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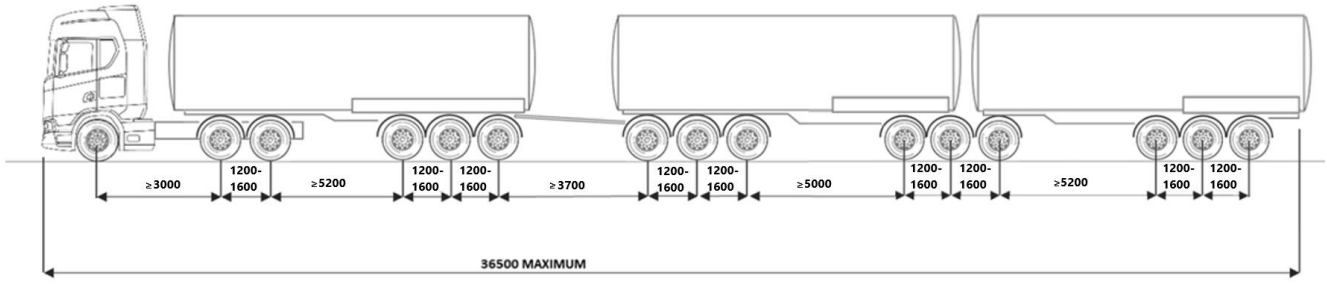
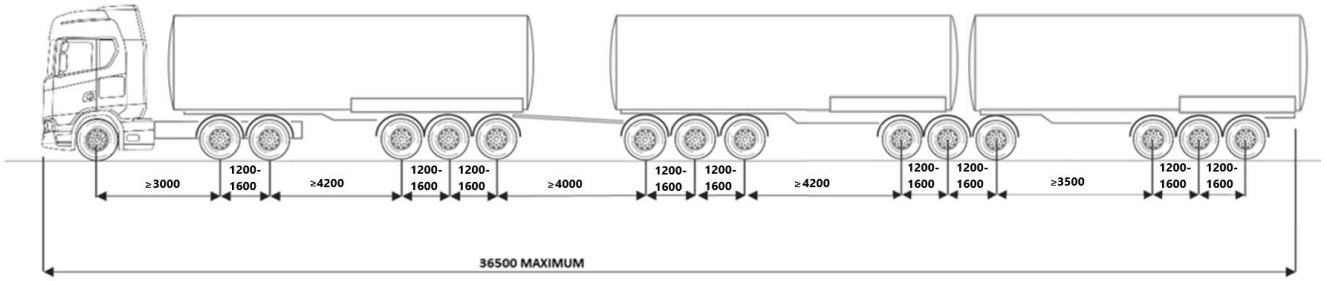
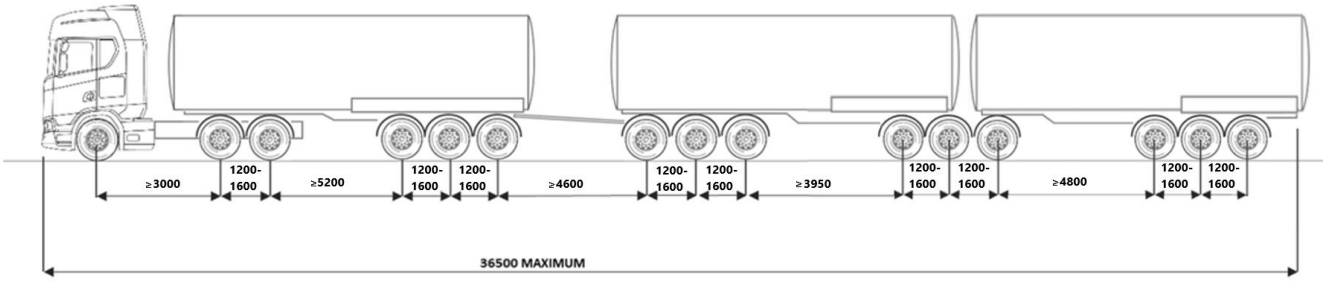


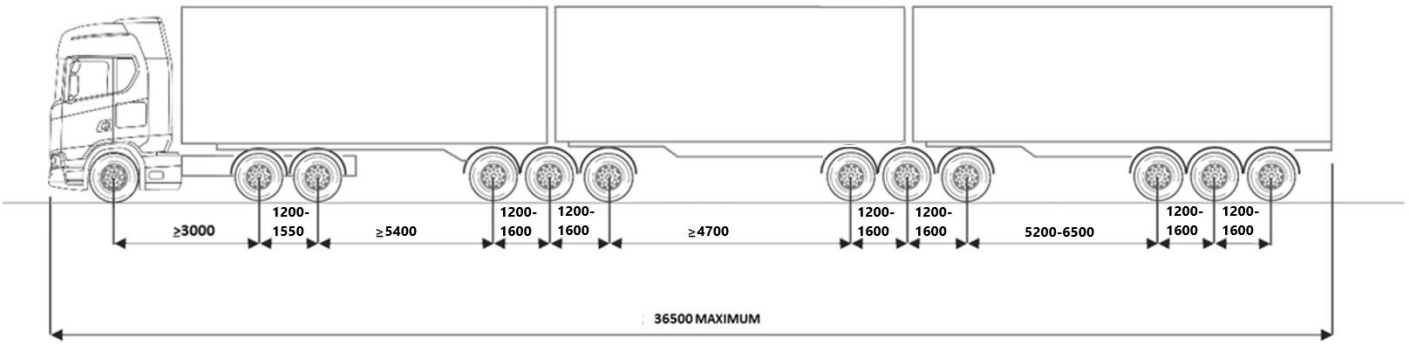

PBS Level 3A AB-Triple – Volumetric Reference Vehicle 3




PBS Level 3A AB-Triple – Volumetric Reference Vehicle 4



PBS Level 3A B-Triple – General Freight Reference Vehicle 1

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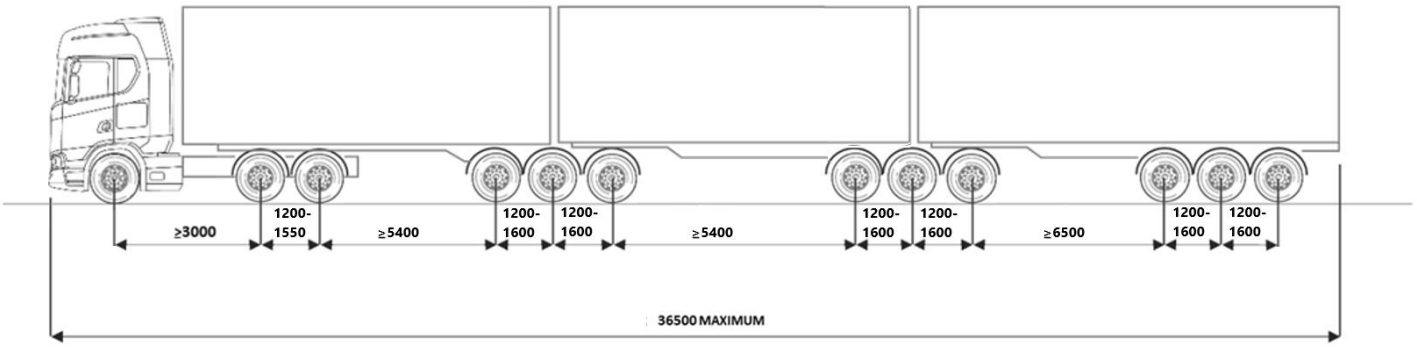
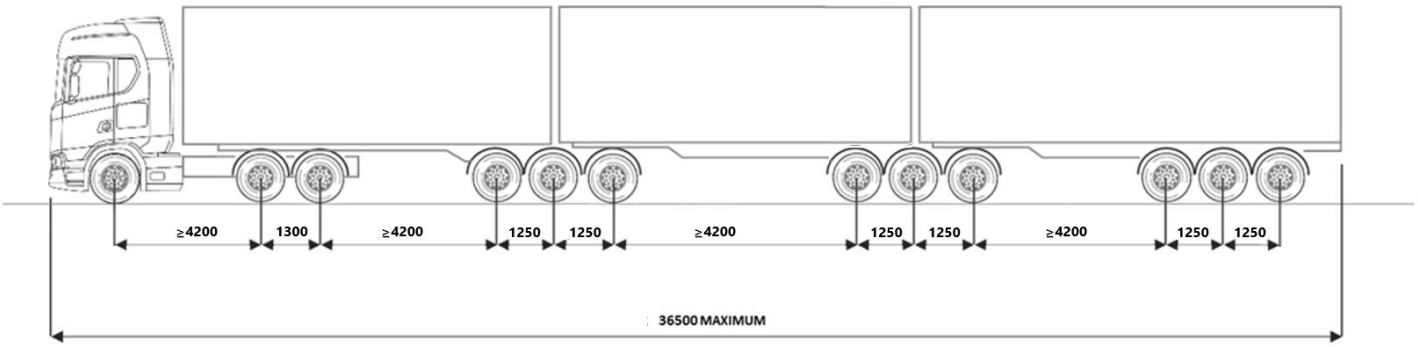
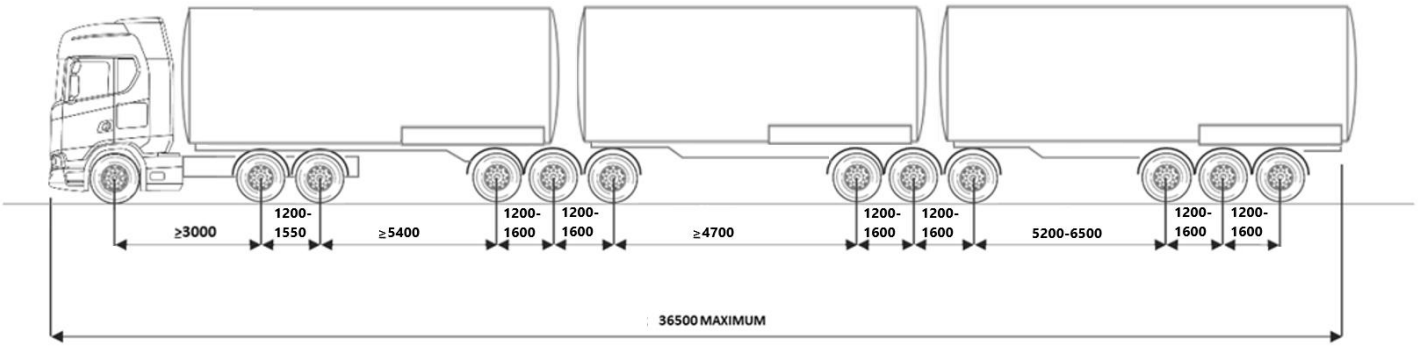



PBS Level 3A B-Triple – General Freight Reference Vehicle 3



PBS Level 3A B-Triple – Volumetric Reference Vehicle 1

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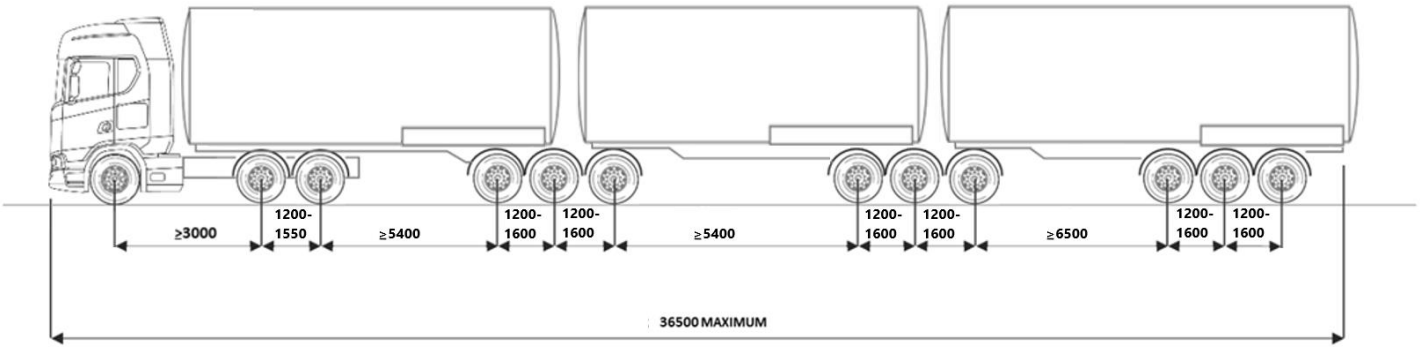
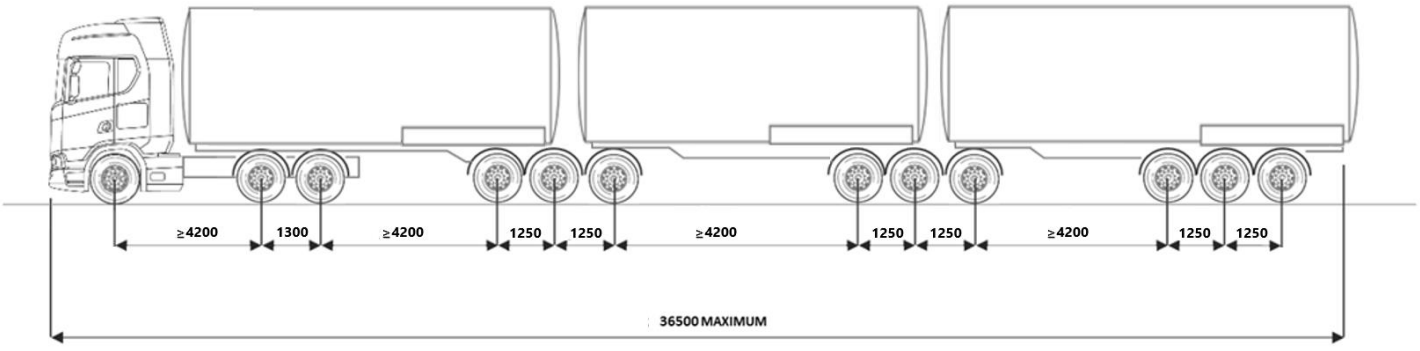
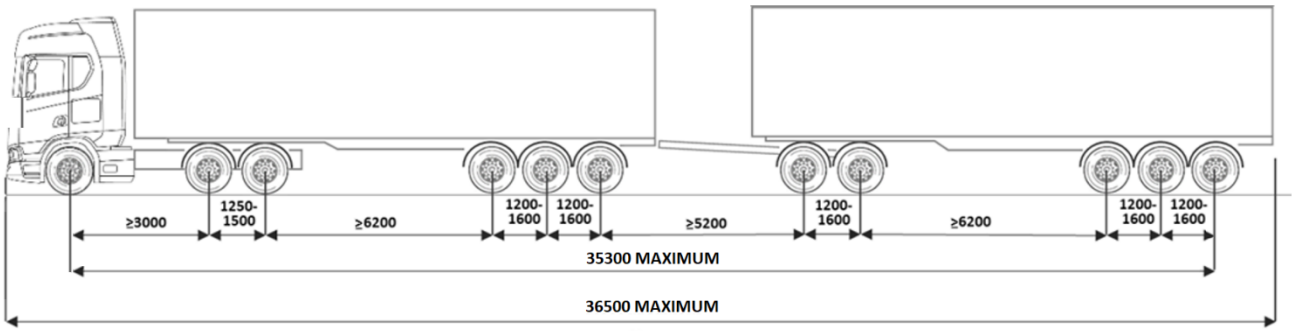


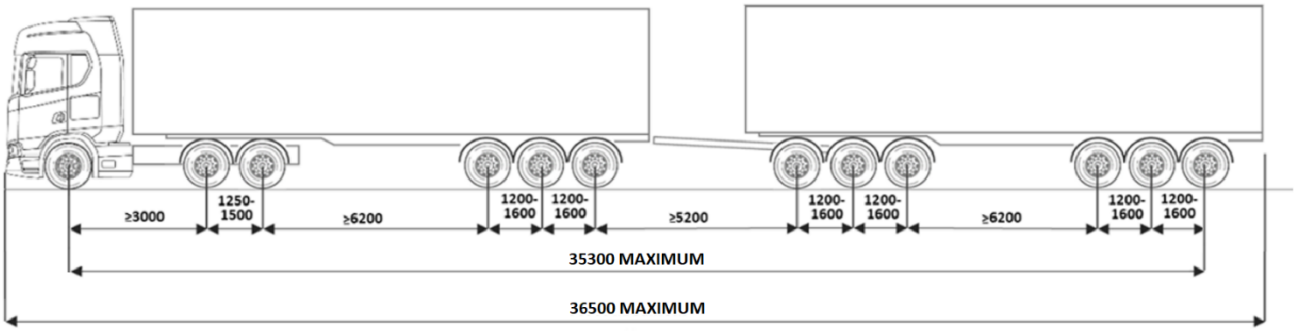

PBS Level 3A B-Triple – Volumetric Reference Vehicle 3



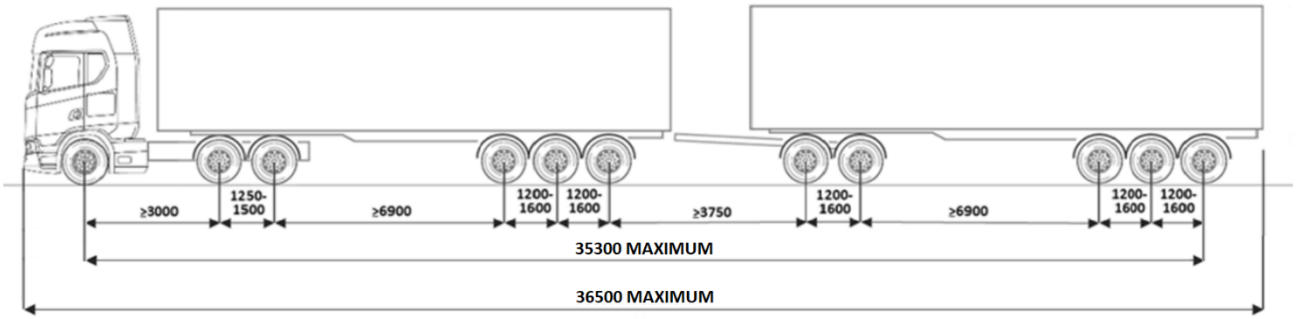
PBS Level 3A A-Double (up to 36.5m) Reference Vehicle 1



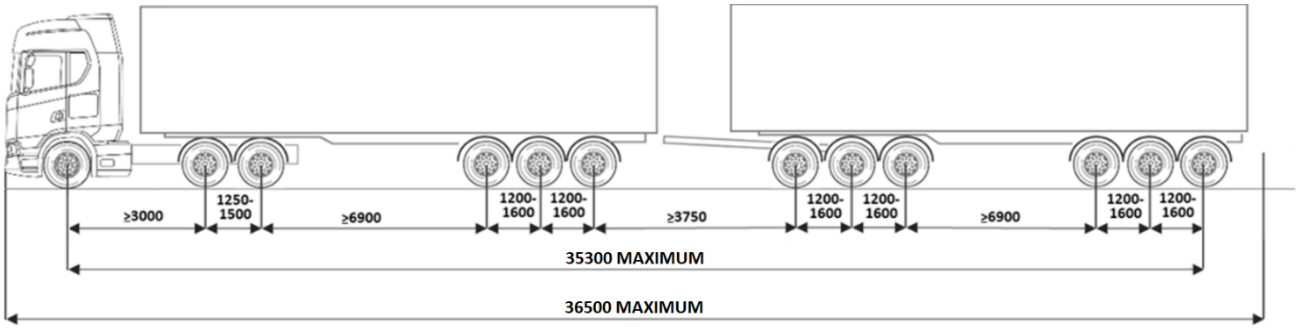

PBS Level 3A A-Double (up to 36.5m) Reference Vehicle 2



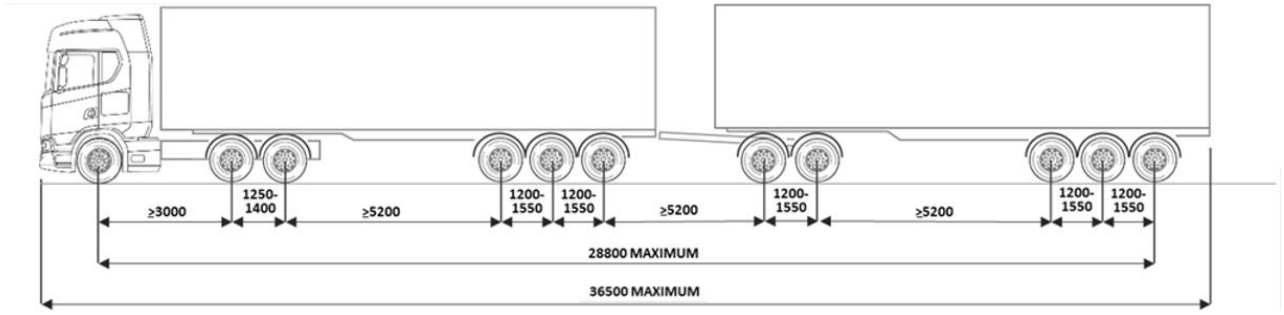

Victoria's PBS Level 3A A-Double (up to 36.5m) Reference Vehicle 3



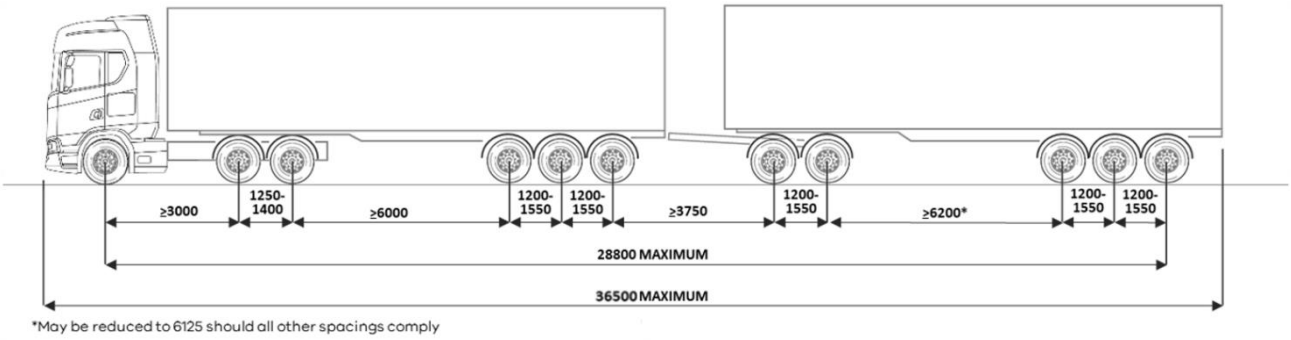

PBS Level 3A A-Double (up to 36.5m) Reference Vehicle 4



PBS Level 3A Mass- General Freight (over 30m) Reference Vehicle 1

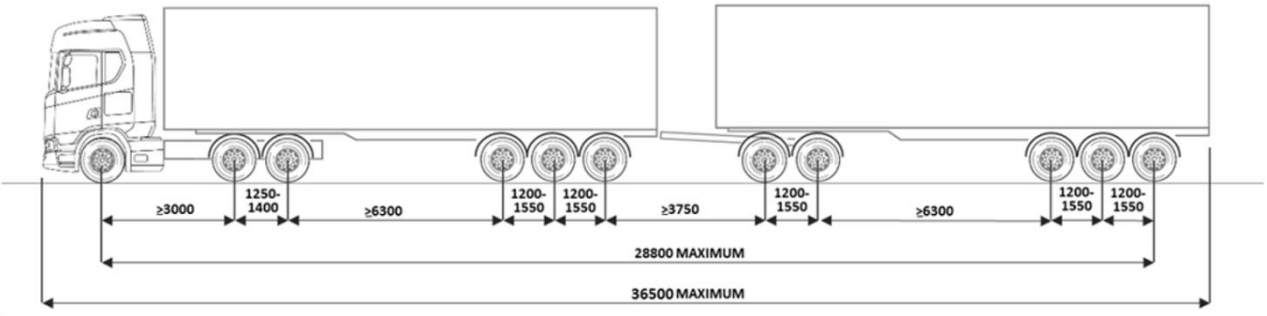



PBS Level 3A Mass- General Freight (over 30m) Reference Vehicle 2

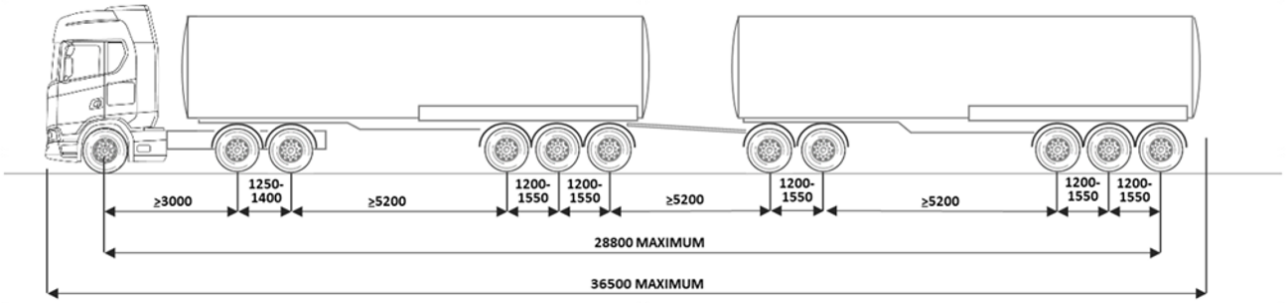



*May be reduced to 6125 should all other spacings comply

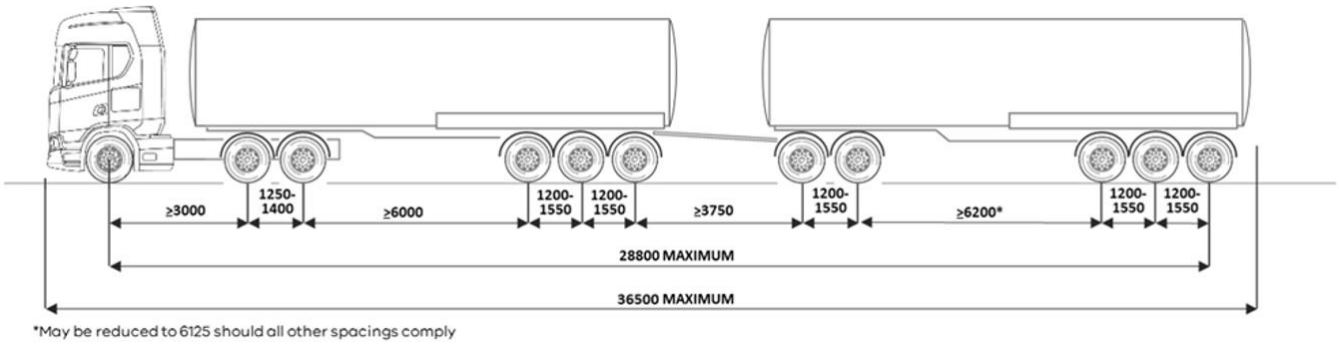
PBS Level 3A Mass- General Freight (over 30m) Reference Vehicle 3




PBS Level 3A Mass- Volumetric (over 30m) Reference Vehicle 1

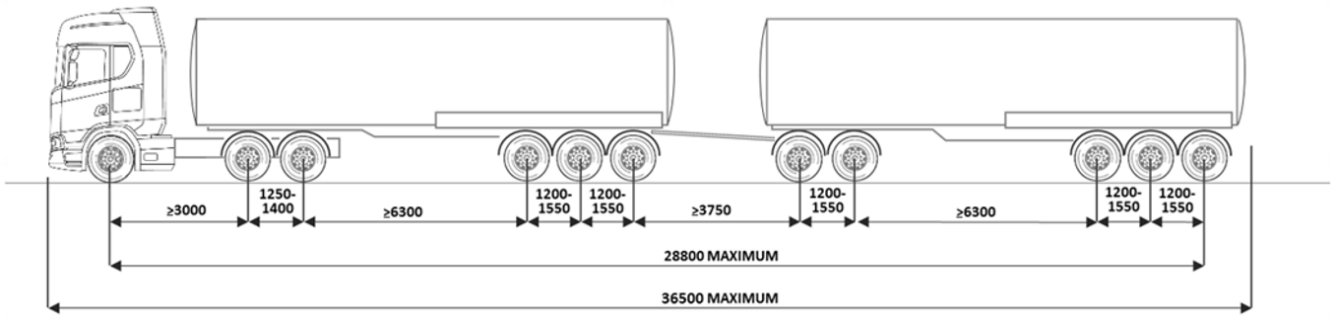


PBS Level 3A Mass- Volumetric (over 30m) Reference Vehicle 2

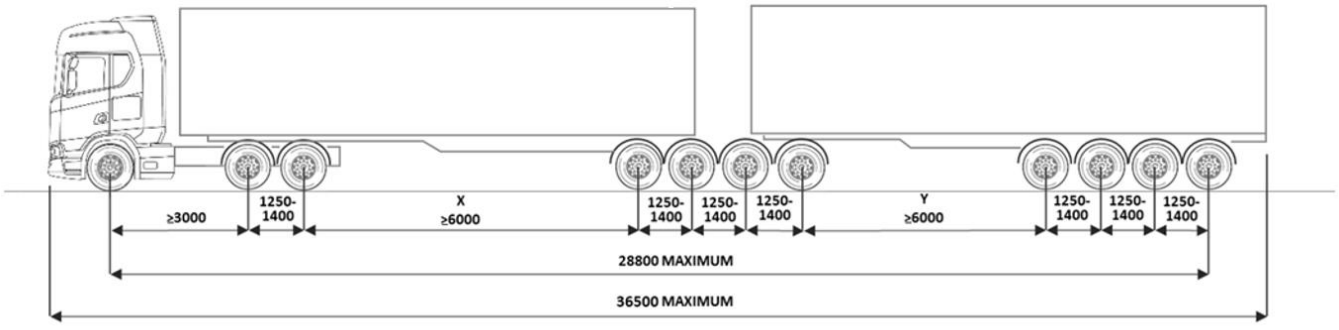



*May be reduced to 6125 should all other spacings comply

PBS Level 3A Mass- Volumetric (over 30m) Reference Vehicle 3

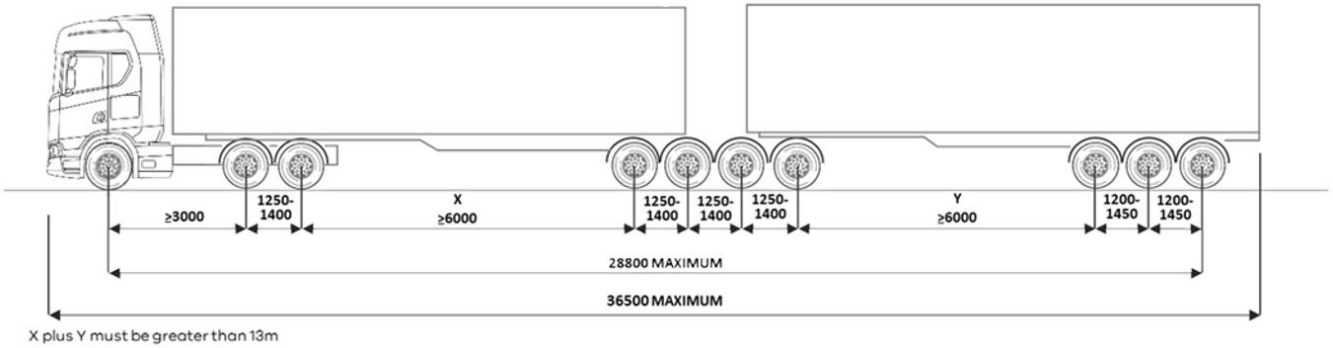



PBS Level 3A Mass- Quad-Quad B-Double (over 30m)



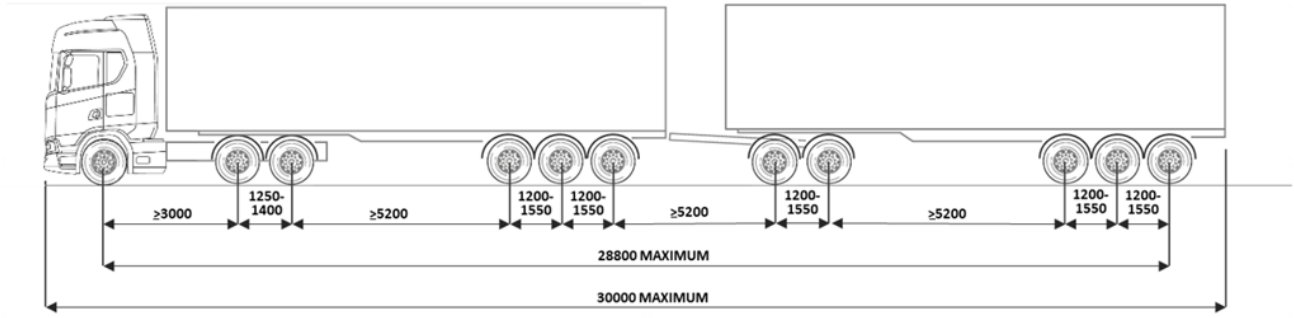

X plus Y must be greater than 13m

PBS Level 3A Mass- Quad-Tri B-Double (over 30m)

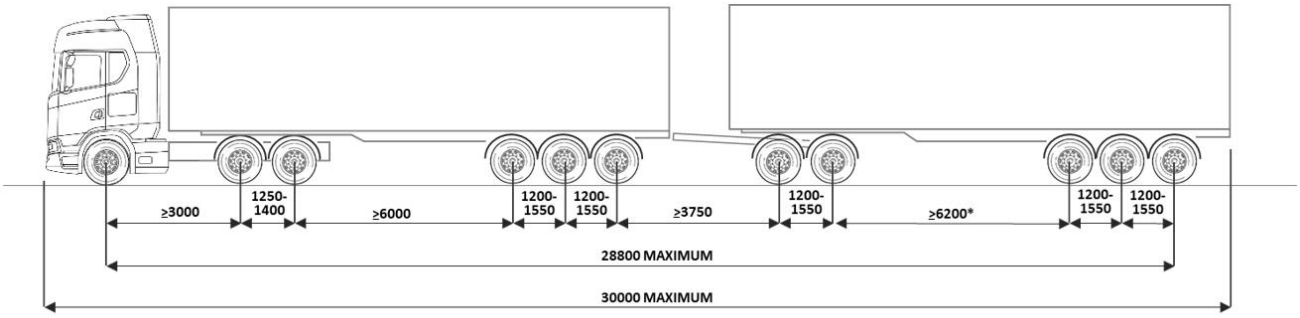


X plus Y must be greater than 13m

PBS Level 2B Mass - General Freight Reference Vehicle 1

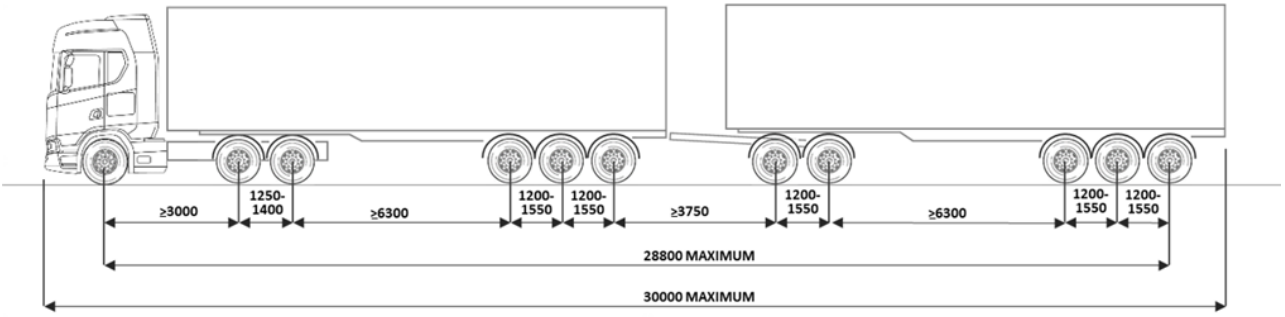



PBS Level 2B Mass - General Freight Reference Vehicle 2

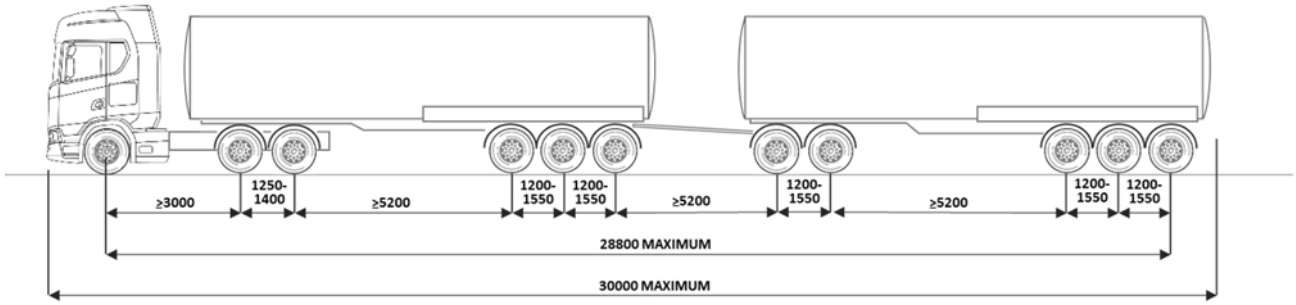


*May be reduced to 6125 should all other spacings comply

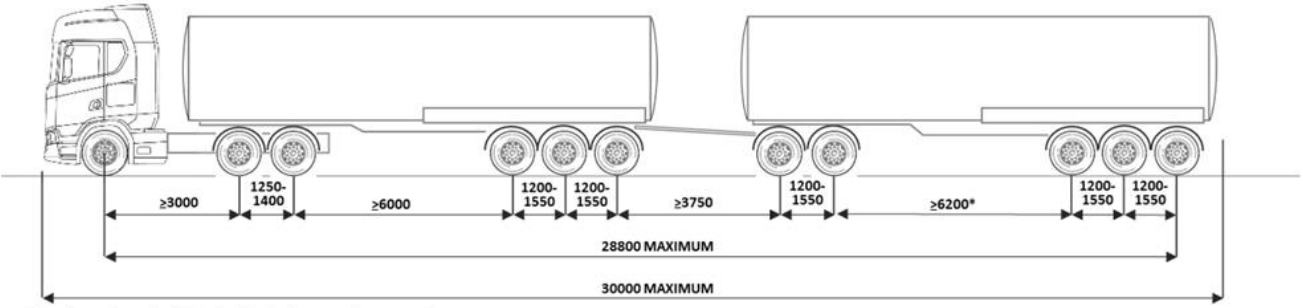
PBS Level 2B Mass - General Freight Reference Vehicle 3



PBS Level 2B Mass - Volumetric Reference Vehicle 1

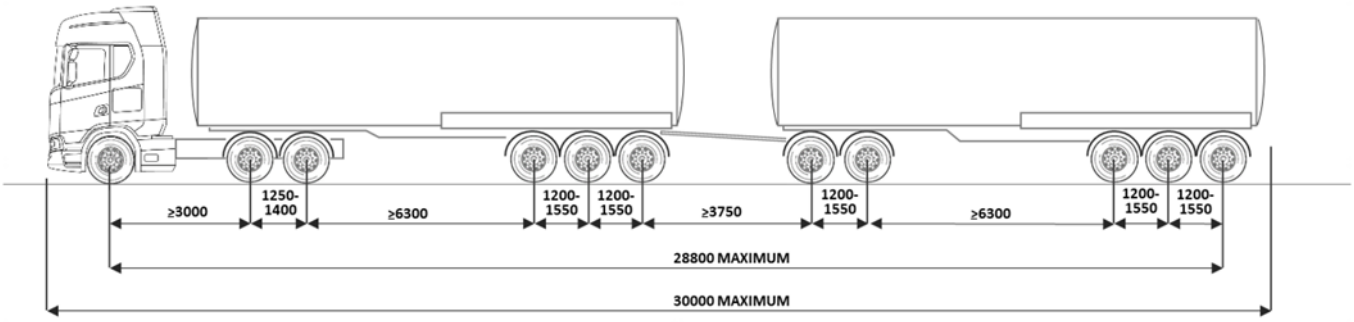



PBS Level 2B Mass - Volumetric Reference Vehicle 2

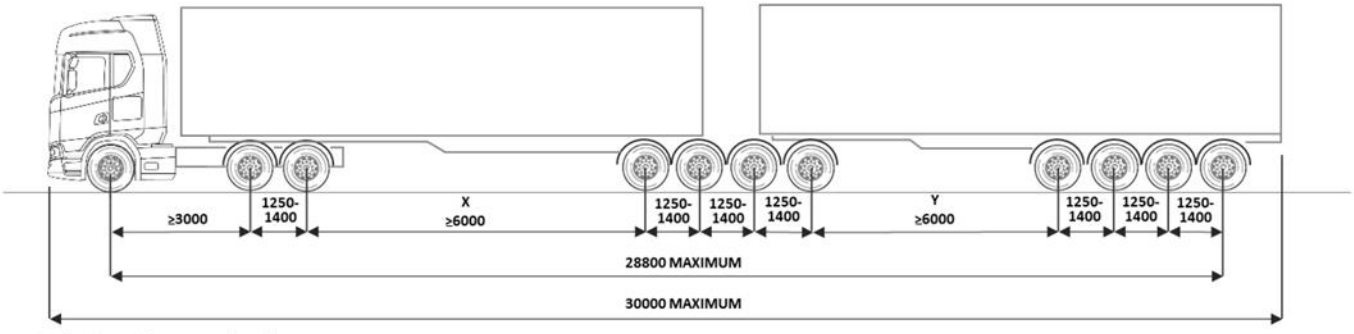



*May be reduced to 6125 should all other spacings comply

PBS Level 2B Mass - Volumetric Reference Vehicle 3

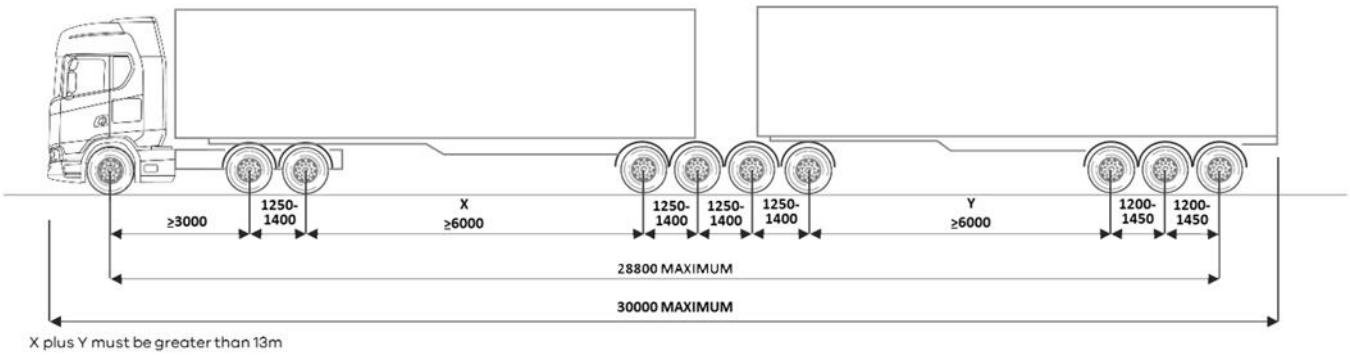



PBS Level 2B Mass- Quad-Quad B-Double

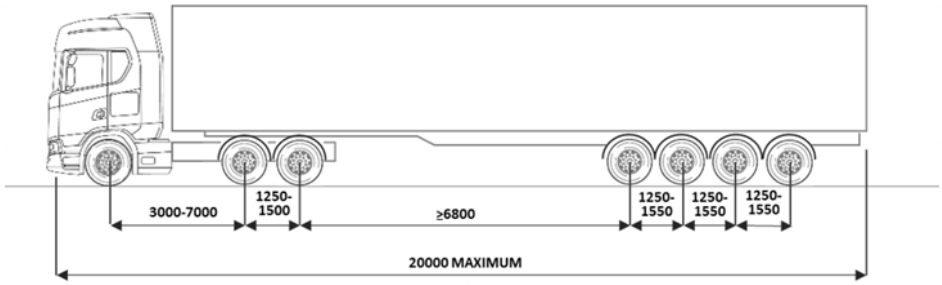



X plus Y must be greater than 13m

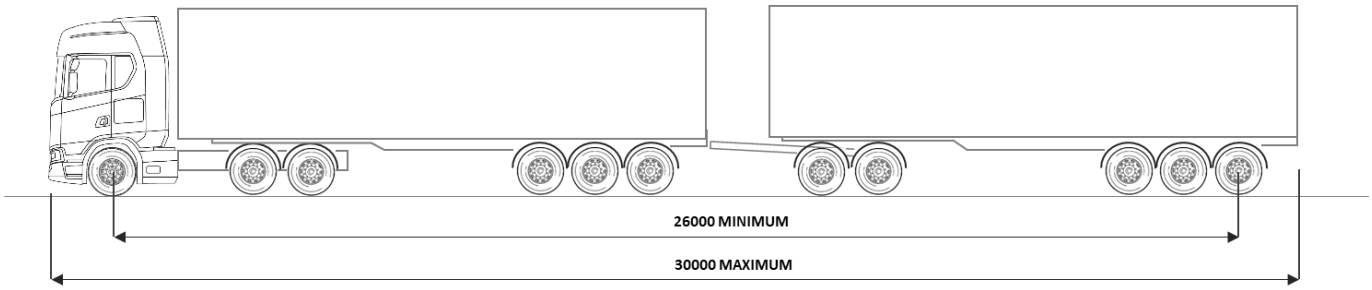
PBS Level 2B Mass- Quad-Tri B-Double



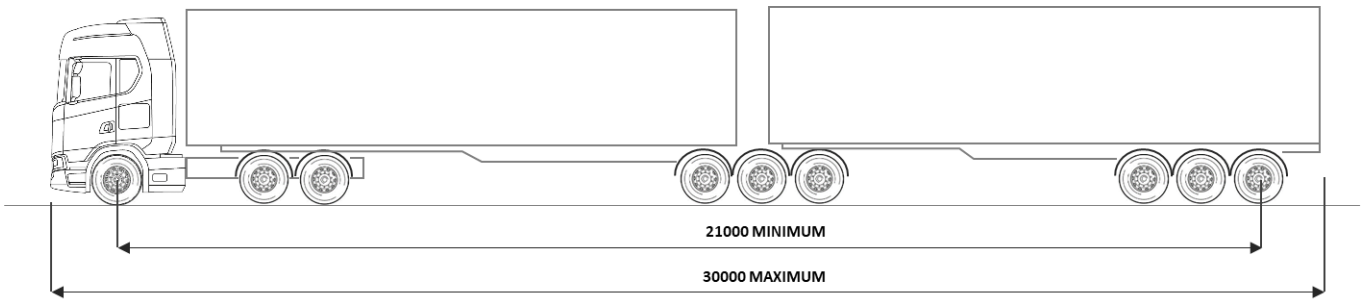

PBS Quad Semi-Trailer



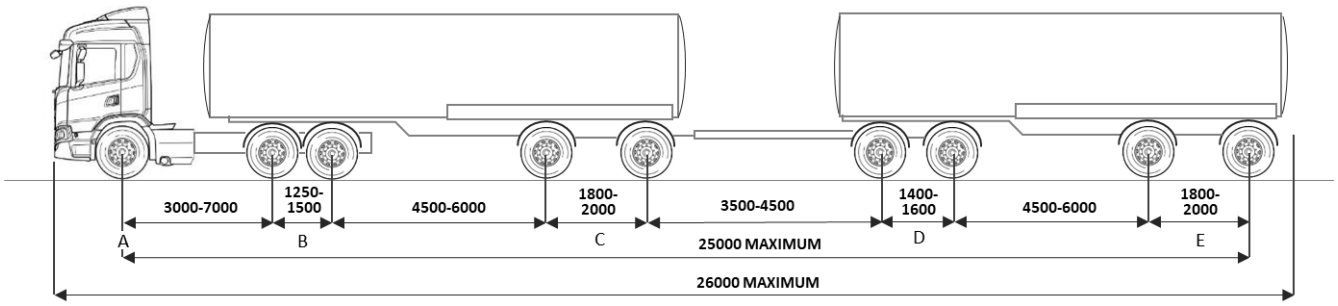

PBS Level 2B Cubic (A-Double)



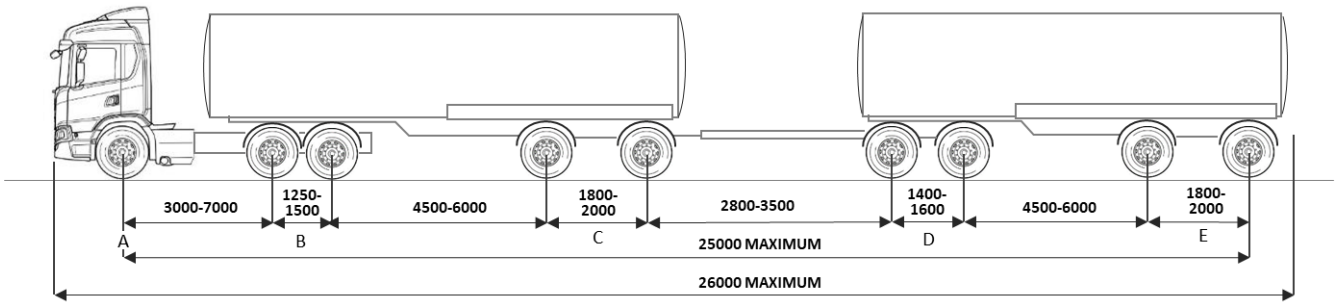

PBS Level 2B Cubic (B-Double)



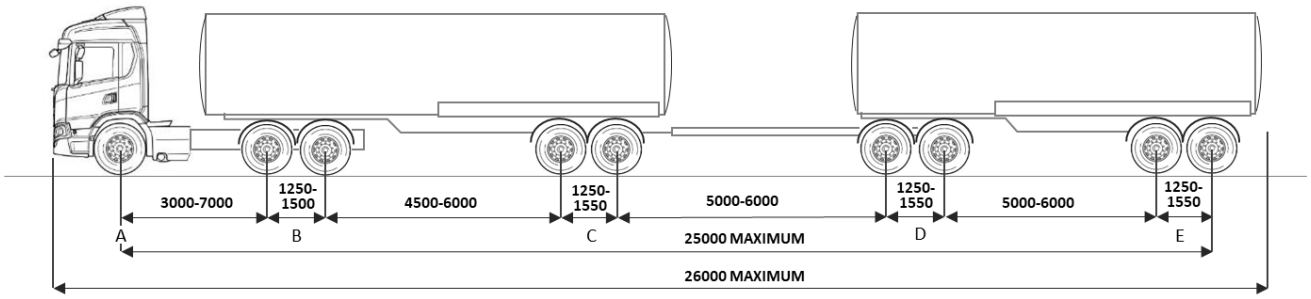
PBS Level 2A Mass - Volumetric Reference Vehicle 1




PBS Level 2A Mass - Volumetric Reference Vehicle 2




PBS Level 2A Mass - Volumetric Reference Vehicle 3




[3] Not to scale. All measurements in millimetres. Reference vehicles for general freight AB-Triples as well as volumetric AB-Triples will be added once these networks are published.

## Need more information?

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

Find out more about the government's initiatives at **dtp.vic.gov.au**