

Victoria's High Productivity Freight Vehicle (HPFV) networks

1. Key requirements to operate HPFVs

In Victoria, 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. A HPFV also includes a Quad-axle semi-trailer operating at up to 50.5 tonnes. Being larger allows more freight to be transported with less vehicles, reducing transportation costs and improving productivity.

The following conditions apply to operate on the Victorian HPFV networks:

- Satisfy the relevant level of Performance Based Standards¹
 - 36.5m A-Double – Level 3
 - 30m A-Double – Level 2
 - 73t Quad-Tri and 77.5 Quad-Quad B-Double – Level 3
 - Quad Semi – Level 1
- The vehicle must be fitted with a GPS device (In Vehicle Unit) accredited under the Intelligent Access Program (IAP)²
- Fitment of a category B or C certified On Board Mass (OBM) system that can be integrated with IAP
- The HPFV (prime mover and trailers) must be accredited under the Mass Management module of the National Heavy Vehicle Accreditation Scheme
- The HPFV must have an anti-lock braking system fitted on all axles
- Certified Road Friendly Suspension³ (RFS) is fitted to the HPFV
- Comply with emission control requirements of ADR 80/02⁴ (post 2007 vehicle).

¹ <https://www.nhvr.gov.au/road-access/performance-based-standards/approval-process>

² <https://tca.gov.au/ntf/specifications/intelligent-access-program-iap-functional-and-technical-specification>

³ https://www.infrastructure.gov.au/vehicles/vehicle_regulation/bulletin/vsb_11.aspx

⁴ <https://www.rms.nsw.gov.au/documents/about/environment/air/air-ust-design-rules-emission-standards.pdf>

The main limitation currently inhibiting the broader adoption of HPFVs is the ability of road infrastructure to accommodate access, both in terms of road geometry due to the increased combination length, and on road structures being able to safely carry the increased mass.

Despite this challenge, VicRoads has been successful to date in expanding the HPFV networks and will continue to work closely with State and Local Government to improve the capacity of infrastructure.

1.1. HPFV Mass and Dimension limits

1.1.1. Axle group mass limits

Axle group loads vary depending on a vehicle's configuration.

Axle Mass Limits are in line with those prescribed under the Heavy Vehicle National Law (HVNL). The table below outlines the requirements for Gross Mass Limits (GML) and Higher Mass Limits (HML)⁵.

Axle configuration	GML	HML
Steer axle	6.0	6.0
Steer axle	6.5 ⁶	6.5
Drive-Tandem	16.5	17.0
Tri-Axle Dolly	16.5	17 ⁷
Tri-Axle Group	20.0	22.5
Quad-Axle Group	20.0	27.0

⁵ <https://www.nhvr.gov.au/road-access/mass-dimension-and-loading/higher-mass-limits>

⁶ Provided the prime-mover complies with the requirements set out in Schedule 1 of the Heavy Vehicle (Mass, Dimension and Loading) National Regulations.

⁷ Tri-Axle Dolly at 22.5 tonnes will be considered on a case by case basis.

1.1.2. Gross Combination Mass limits

The Gross Combination Mass (GCM) limits for each of the HPFV combinations are as follows:

- 36.5m A-Doubles – 85.5t
- 30m A-Doubles – 85.5t
- Quad Semi Trailer – 50.5t
- B-Doubles:
 - Quad-Tri – 73t
 - Quad-Quad – 77.5t

1.1.3. Maximum dimensions

The maximum dimension for HPFVs are as follows:

Combination	Height	Width	Length
36.5m A-Doubles	4.3m	2.5m	36.5m
30m A-Doubles	4.3m	2.5m	30m
73t Quad-Tri B-Double	4.3m	2.5m	30m
77.5t Quad-Quad B-Double	4.3m	2.5m	30m
Quad Semi	4.3m	2.5m	20m

2. Where can HPFV's operate?

Due to HPFV's operating at increased mass and length, they require a permit to operate on the road network. VicRoads has developed a range of pre-approved HPFV network maps where they can operate.

These HPFV networks have been developed with a focus on providing access to primary freight routes connecting with Victorian Ports, interstate links and key industries.

VicRoads is progressively assessing more freight routes to continue to expand the HPFV networks. The HPFV networks are available on VicRoads website via: <https://www.vicroads.vic.gov.au/business-and-industry/heavy-vehicle-industry/heavy-vehicle-map-networks-in-victoria>

2.1.1. What do the different coloured roads on the HPFV networks mean?

To help distinguish the HPFV access status of different roads the following colours have been used:

- **Green** = approved for HPFV at full mass
- **Orange** = approved for HPFV at reduced mass
- **Blue** = approved for HPFV at full mass following highway upgrade
- **Red** = restricted to 68.5 tonnes
- **Purple** = currently under assessment

2.1.2. Symbols specific to the HPFV 36.5m A-Double networks

Given the added length of a 36.5m combination, corresponding with an increased Low Speed Swept Path (LSSP) width, the following map symbols have been introduced:



Intersections where turns do not provide LSSP access up to 10.6m



Rest areas that provide entry, egress and parking for HPFVs up to 36.5m

2.1.3. What about rail level crossings on the network?

In line with the *Transport (Compliance and Miscellaneous) Act 1983*, heavy vehicles that exceed 26.0 metres in length require a permit to cross a rail level crossing.

Consequently, prior to travel, the registered owner must obtain a permit from the Over Dimension Load team in the Department of Transport. Applications stating the length of the vehicle and the time of day(s) of the journey must be sent to odlpermit@ecodev.vic.gov.au. Please be aware that applications can take up to five days to process.

For more information please contact the following number – 8392 7720. (More information can also be found [here](#)).

3. Further Requirements

3.1. Performance Based Standards (PBS) Approval

To obtain PBS approval, a vehicle must be assessed and certified against 16 safety-related and 4 infrastructure-related performance standards.

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 related standards address the vehicle's impact on road pavements and bridge structures.

The bar is set high for PBS vehicle performance, so vehicles satisfying all PBS standards are known to have a higher level of safety than the average non-PBS vehicle.

More information on PBS is available on the National Heavy Vehicle Regulator's (NHVR) website: <https://www.nhvr.gov.au/road-access/performance-based-standards>

3.2. NHVR Permits

A Class 2 permit is required for a PBS-approved HPFV to access the network. The operator must obtain a letter of PBS

Final Approval from the National Heavy Vehicle Regulator (NHVR) prior to application for a permit.

More information on PBS and permits can be found on the [National Heavy Vehicle Regulator](#) website.

3.3. Intelligent Access Program (IAP)

All HPFV's are required to be enrolled in the Intelligent Access Program (IAP) - a certified vehicle tracking system using telematics to monitor heavy vehicles that may damage road infrastructure and/or pose road safety risks. Vehicles are monitored to ensure they adhere to approved routes at approved times and are not operating on unsuitable roads.

IAP uses tamper-evident GPS devices installed in vehicles that are connected wirelessly to accredited third-party service providers to monitor compliance with a specific set of approved routes for each vehicle.

Any instance of non-compliance is reported to the relevant compliance and enforcement authority so that action can be taken, as necessary.

Unless otherwise approved, operators must provide route compliance assurance by participating in the IAP using either an IAP service provider's certified In-Vehicle Unit or the operator's existing telematics system (if possible) under the IAP's Entry Options.

For details about IAP participation contact Transport Certification Australia (T: 03 8601 4600, www.tca.gov.au).

3.3.1. On-Board Mass (OBM)

OBM Systems⁸ measure the mass of axle groups and calculates the gross vehicle mass of a vehicle. They are used to ensure the mass carried by the vehicle is within a range of compliance.

From 2020 it will be a requirement in Victoria for all HPFV's to be fitted with a category B or C certified OBM system that can be integrated with IAP.

3.4. Higher Mass Limits (HML) Requirements

To operate at Higher Mass Limits certified road friendly suspension must be fitted to the combination.

Regardless of mass, all HPFV's must participate under the National Heavy Vehicle Accreditation Scheme (NHVAS).

3.5. Signage

All HPFV combinations in excess of 22 metres must display a road train warning sign at its front and rear, or a long vehicle warning sign at its rear.

⁸ <https://tca.gov.au/truck/obms-ta>

⁹ Victoria has recently extended Road-train access south of Oyen to allow for the transport of hay and grain to drought affected areas in

3.6. Can existing North West Road Trains access the HPFV 36.5m A-Double networks?

Road Trains currently approved to operate in the North West will be required to obtain PBS approval to gain access to the HPFV 36.5m A-Double networks south of Ouyen and Swan Hill.⁹

3.7. What if my vehicle doesn't comply with the reference vehicles?

Over time VicRoads intend to introduce networks to provide more flexibility for operators, including networks for B-Triples and A-B-Triples.

Until then, a bridge assessment will be required to access the network if you don't comply with the above reference vehicles.

NSW and QLD. For more information refer to - <https://go.vic.gov.au/dQt08T>

4. Axle group spacings and reference vehicles

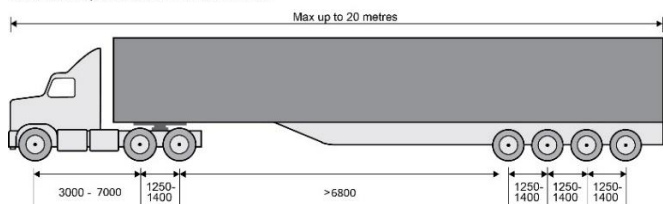
HPFV combinations must meet the following minimum and maximum axle spacings to ensure they can safely cross all of the structures on their relevant network (the figures are in millimetres):¹⁰

Note – ‘central trailer spacing’ refers to the distance between the centre point of the rear axle of the lead Semi Trailer and the centre point of the front axle of the Dolly Trailer.

4.1. Quad Semi

Quad-Semi > 46 tonne Configuration (not to scale)

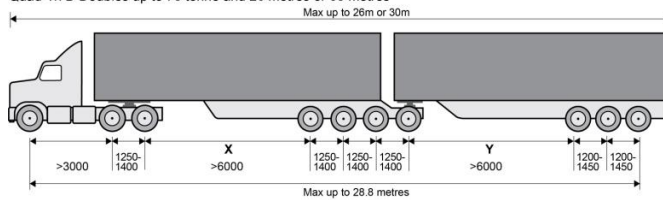
Quad-Semi up to 50.5 tonne and 20 metres



4.2. 73t Quad-Tri and 77.5t Quad-Quad B-Doubles

B-Double > 68.5 tonne Configuration (not to scale)

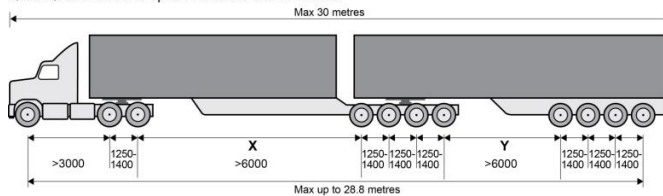
Quad-Tri B-Doubles up to 73 tonne and 26 metres or 30 metres



Note – X plus Y axle spacing for Quad-Quad B-Double must be greater than 13m

B-Double > 68.5 tonne Configuration (not to scale)

Quad-Quad B-Doubles up to 77.5 tonne and 30 metres

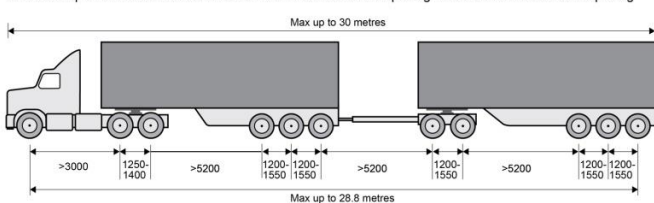


Note – X plus Y axle spacing for Quad-Quad B-Double must be greater than 13m

4.3. 30m 85.5t A-Doubles

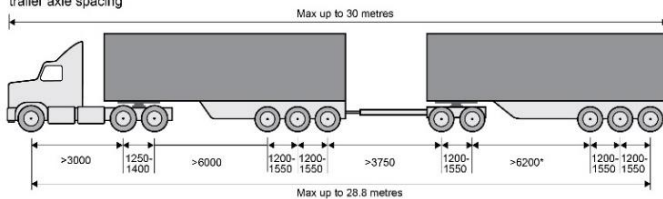
HPFV A-Double Reference Vehicle 1 (not to scale)

A-Double up to 85.5 tonne and 30 metres – 5.2m ‘central trailer spacing’ and 5.2 metre trailer axle spacing



HPFV A-Double Reference Vehicle 2 (not to scale)

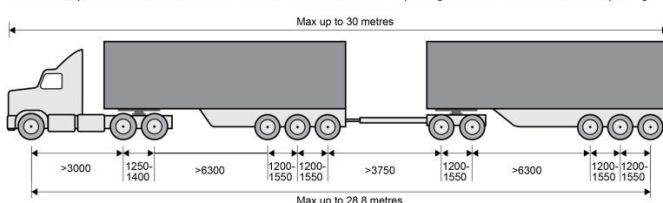
A-Double up to 85.5 tonne and 30 metres – 3.75m ‘central trailer spacing’ and 6.2 metre trailer axle spacing



Note – *spacing may be reduced to 6.125m should all other spacings comply

HPFV A-Double Reference Vehicle 3 (not to scale)

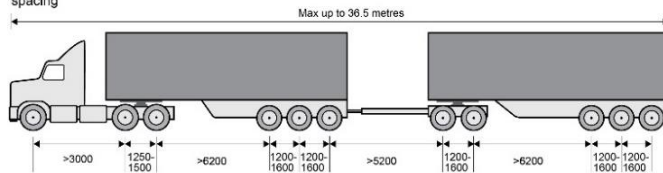
A-Double up to 85.5 tonne and 30 metres – 3.75m central trailer spacing and 6.3 metre trailer axle spacing



4.4. 36.5m 85.5t A-Doubles

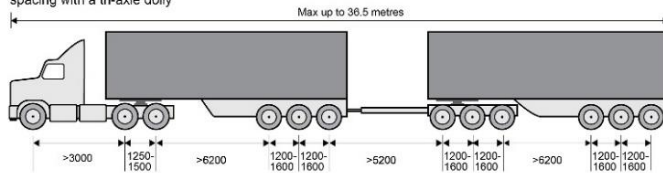
HPFV 36.5m A-Double Reference Vehicle 1 (not to scale)

A-Double up to 85.5 tonne and 36.5 metres – 5.2 metre ‘central trailer spacing’ and 6.2 metre trailer axle spacing



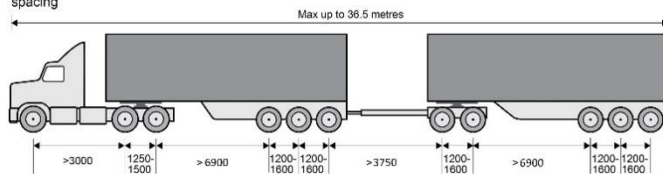
HPFV 36.5m A-Double Reference Vehicle 2 (not to scale)

A-Double up to 85.5 tonne and 36.5 metres – 5.2 metre ‘central trailer spacing’ and 6.2 metre trailer axle spacing with a tri-axle dolly



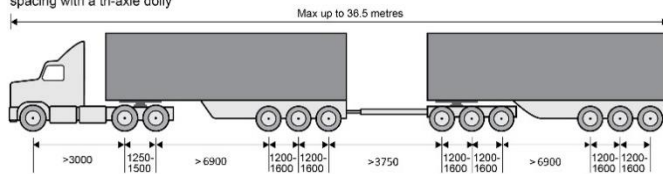
HPFV 36.5m A-Double Reference Vehicle 3 (not to scale)

A-Double up to 85.5 tonne and 36.5 metres – 3.75 metre ‘central trailer spacing’ and 6.9 metre trailer axle spacing



HPFV 36.5m A-Double Reference Vehicle 4 (not to scale)

A-Double up to 85.5 tonne and 36.5 metres – 3.75 metre ‘central trailer spacing’ and 6.9 metre trailer axle spacing with a tri-axle dolly



¹⁰ Combinations that do not comply with the minimum and maximum axle spacings noted above will require a bridge assessment on the nominated route.