Phileas

APTS
Advanced Public Transport Systems bv

VDL
BUS & COACH

The Phileas is the tram of the 21st century. For a few years now, Urban Public Transport is booming in terms of demand and needs. The objective of Advanced Public Transport Systems bv (APTS) is to use its Phileas system to provide sustainable and attractive solutions to the Urban Public Transport Sector.

The Phileas system is the alternative to 'steel on steel' Public Transport providing a comparable image, design and increasing attractiveness of the Urban Public Transport network of cities.

The objective of APTS is to provide different affordable solutions for 100% clean and green High Quality Urban Public Transportation for cities and regions.

Urban. Solutions.

Small and medium sized cities normally cannot afford a tram system due to the high costs and the needed passenger capacity. The Phileas creates for those cities the possibility to offer their citizens and visitors a high quality transportation system with all the characteristics of a tram system. Also for large cities with narrow, historical city centres the Phileas offers a feasible and affordable alternative for the feeder lines to the high capacity Public Transport modes. Compared to a tram system, the Phileas system requires less than 50% in investment in rolling stock and infrastructure. The operational costs depend on the capacity of the system, but also here reductions up to 50% are realistic.

Virtual. Guidance.

The Phileas is equipped with a virtual guidance system. This is a computerised system with low infrastructural implementation costs. The reference magnets are embedded in the road surface and their positions are registered in the computer systems of the vehicles. The virtual route that is to be driven by the Phileas, is created and stored in the memory of the computers in the vehicle. The Phileas is equipped with measuring sensors, which will get all information from the ride; real position of the magnets, speed, acceleration, steering angles, etc. The measured information is continuously compared with the virtual route, and if any differences occur, the guidance system will automatically correct the vehicle movement. With this Phileas guidance system, it is possible to reach safety levels of level SIL2 – present tram equivalent – till SIL4 – TGV equivalent.

Accessibility. Comfort.

The Phileas characteristics like virtual guidance, independent wheel suspension, a low and fully flat floor without obstacles and the availability of several hybrid versions, contribute to the high level of comfort and accessibility offered to the passengers. With the flexibility of the Phileas design, interior and exterior, it is easy for the operators to create a friendly atmosphere. The wide double doors, level boarding and off-board ticketing make the vehicle perfectly accessible to wheelchairs and disabled persons, and also offer the possibility to reduce boarding times considerably.

Environment. Zero emissions.

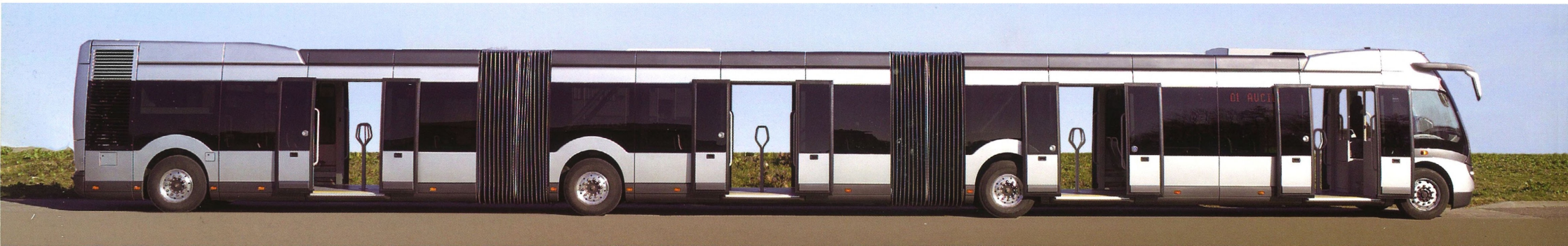
The Phileas is an almost zero-emissions vehicle. The standard propulsion system is the parallel hybrid Allison transmission with Cummins diesel engine. The fuel consumption is 20% less compared to a vehicle with a conventional diesel driveline. The objective of APTS is to develop and produce 100% emission free vehicles. Therefore, the coming years the following zero emission versions of the Phileas will become available: trolley version, fuel cell version and induction version.

Modularity. Capacity.

With a length of 24 metres, the Phileas offers a capacity comparable to a 30 metres long tram. The reason for this is its modular setup with a fully flat floor (no obstacles) and choice of door positions which allow the customer to have a free choice in the seat arrangement. The doors can even be positioned on both sides allowing a reduction in the infrastructural implementation costs. Also, it is possible to change the front of the vehicle in multiple ways, and to upgrade the propulsion system very easily: even years after the vehicle has been taken in operation. With a frequency of two minutes, the 26 metres Phileas can transport up to 6,000 passengers per hour, per direction.

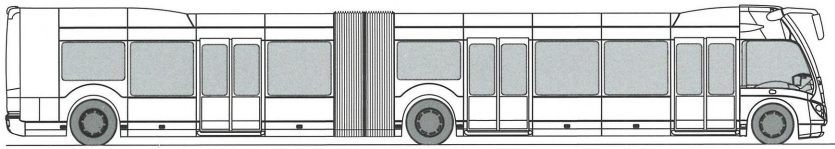
Technical specifications

Model	Phileas 18 m	Phileas 24 m	Phileas 26 m
Dimensions			
Length	18.48 m	24.49 m	26.04 m
Width	2.55 m	2.55 m	2.55 m
Height	3.20 m	3.20 m	3.20 m
Accessibility			
Kneeling	-70 mm	-70 mm	-70 mm
Floor height	340 mm	340 mm	340 mm
Position of the doors	flexible	flexible	flexible
Option	both sides	both sides	both sides
Dimensions doors (WxH)	1.20 x 2.00 m	1.20 x 2.00 m	1.20 x 2.00 m
Drivability			
Turning radius	< 12.50 m	< 12.50 m	< 12.50 m
Swept path	< 4.40 m	< 4.40 m	< 4.40 m
Light weight body			
Side modules	composite polyester	composite polyester	composite polyester
Floor, roof and bulkheads	composite aluminium	composite aluminium	composite aluminium
Interior			
Seat arrangement	adaptable	adaptable	adaptable
Weight			
Maximum total weight	27,000 kg	37,350 kg	37,350 kg
Performance			
Maximum speed	> 90 km/h	> 90 km/h	> 90 km/h
Grade	> 14%	> 14%	> 14%

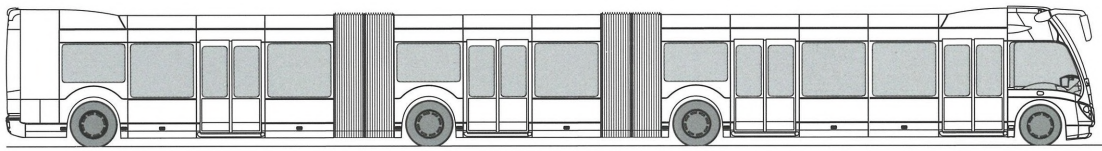


Propulsion systems

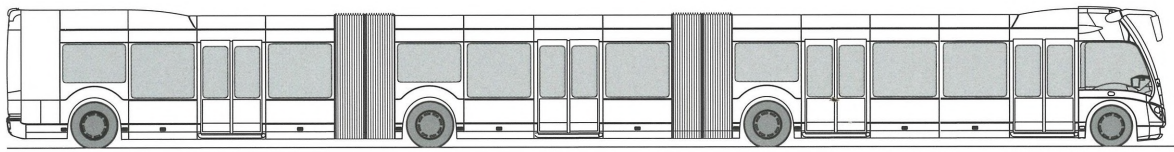
Engine	*Cummins ISB*	*Cummins ISL*	*full electric zero emissions*
Hybrid system	*Allison EP50*	*Allison EP50*	*Vossloh Kiepe*
Phileas 18 m	●	●	●
Phileas 24 m		●	●
Phileas 26 m		●	●



Phileas 18 m



Phileas 24 m



Phileas 26 m

The full electric propulsion systems, which are under development at APTS are:

- *Fuel cell hybrid Phileas with Ballard fuel cell system*
- *Trolley hybrid Phileas with Vossloh Kiepe trolley installation*
- *Induction Phileas with Bombardier Primove induction system*

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