









THE NEW GENERATION CITEA. ZERO COMPROMISE.

Our answer to the challenges of tomorrow's public transport.

The world changes. Cities change. And mobility changes. The challenges for the cities of tomorrow, start already today. In the liveable cities of tomorrow, zero emission will be the norm. Providing great advantages for cities, people, and the environment. This requires new technologies and a different way of thinking. As a result, VDL Bus & Coach introduces the new generation Citea: an innovative bus concept of supreme quality, completely developed from scratch and without compromises.

New way of thinking. The development of the new generation Citea started with a completely blank sheet. It was clear that the next step of a zero-emission public transport bus would require new technologies and a new way of thinking. So, we did. The new generation Citea is completely based on an electric drivelinewhich is entirely new. And this is just one example of how the new generation Citea integrates new ways of thinking. With zero compromise.



Looking forward.

We're always looking for new thinking and technologies to improve our vehicles. This resulted in extensive knowledge and expertise. And, in a position of VDL Bus & Coach as a reliable transition partner. We partner with our customers on projects from A to Z - from implementing charging infrastructure to organising training courses.

But it doesn't stop there. Since 2015, we have been conducting market research to better understand the future of mobility. This knowledge was used to develop our new, innovative bus concept.

The result: a zero-emission city bus, which is the perfect answer to the challenges of tomorrow's public transport. With zero compromise.





New green factory in Roeselare.

In early 2023, we will open a new green factory in Roeselare, Belgium. This new CO₂-neutral factory in Roeselare will be – next to Valkenswaard – VDL's centre for e-mobility and the most modern bus factory in Europe. Allowing us to respond even better to the needs and demands of the European market.

Upgrade.

The production hall of the new factory will cover 20,000 square metres. The production process will be compact and aimed at building more electric buses than is currently the case. In the preparation stage, we will work with smart pre-assemblies, which will make the lead time shorter and more efficient. By organising the production process more intelligently and extensively educating and training our people we will be able to double capacity in the new factory.

Green technology.

Everything in the new factory is set up to build electric buses in the most efficient way. This will be done in an energy-neutral environment, using 'green' technology. This means more natural light and less artificial light, the reuse of rainwater, the choice of medium-heavy concrete construction and green roofs on the offices, which lead to cleaner air and a cooling effect indoors.





Sustainable on every aspect.

In the continuous search for areas in which the sustainable contribution of VDL Bus & Coach can be improved, people are key. Because, sustainable transport solutions are essential in the liveable city, which must become quieter and cleaner.

One of the components of our Citeas that is of great importance for sustainability, is the battery. Local suppliers play an important role in minimising logistics and thus the ecological footprint of transport. Next to this, we selected materials with reduced environmental impact and work constantly on optimal recyclability and low(er) energy consumption.

Responsible supply chain.

To improve our chain on sustainability, UNICEF will support VDL in mapping the links in the battery chain of the new generation of Citeas and in setting up a structure that will provide insight into VDL's contribution to global sustainability goals, the so-called UN 17 Sustainable Developments Goals.







Starting from scratch.

We started the development of the new generation Citea from scratch – meaning that we started with a blank sheet. Simply because the next step of a zero-emission public transport bus would require new technologies and a new way of thinking. This meant that we started by putting the traditional diesel bus layout aside. From that point on, we started creating the optimal electric bus platform. Our goal: creating a platform that offers the optimum for the operator; electric driving with zero compromises.



Redefining standards.

One of the key things of the new generation Citea is that it completely based on an electric driveline, suitable for every sort of deployment and climate zone. This gave us the opportunity to develop from the inside out and redefine the well-known standards. Positioning the seats differently, placing the batteries in the floor, and using the optimal axis distribution as a guideline are just a few examples.

Everything has been developed with 4 key areas in mind, and to make those 'best in class': low energy consumption and optimum deployment, maximum passenger capacity, optimal driver comfort and ergonomics and optimum comfort for passengers.

The result is a completely new platform that sets, and continues to set, the new standards for zero emission buses. And by developing flexible and modular components, the new generation Citea is ready for future developments and energy sources.

4 length variants.

The new generation Citea is - due to its modular system - extremely suitable for both city and regional transport. Repair and maintenance costs are reduced as well as it realises a more favourable energy consumption.



Improved serviceability.

The new generation Citea is easier to maintain, diagnose and repair. Various service components, such as filters and filling points, are optimally placed and easily accessible. Integration in connectivity makes diagnosis even more efficient. The power can be taken-off easily and safely, not only by technicians but also by the security services. In addition, the technician can easily lower the battery modules from the floor and can be replaced individually.





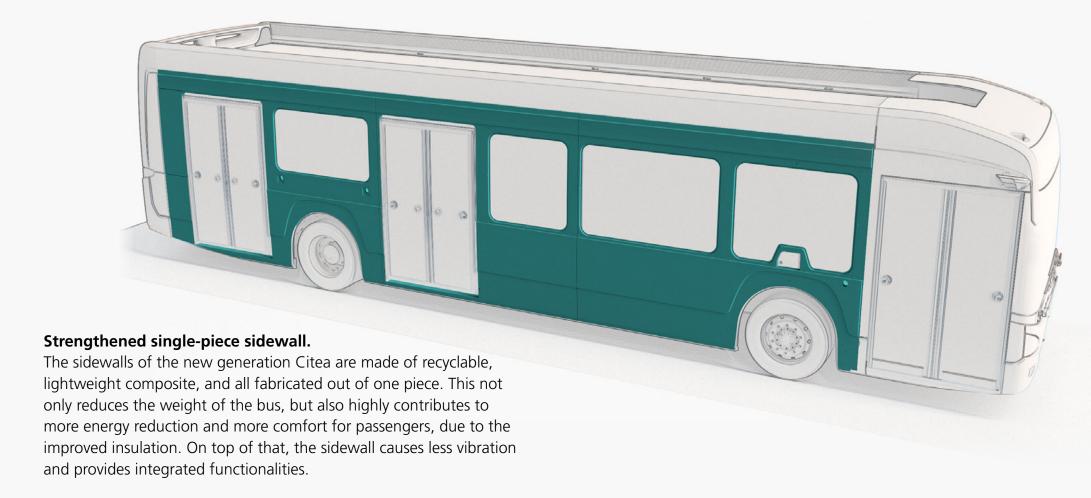
COMPLETELY BASED ON AN ELECTRIC DRIVELINE.

Electric driveline.

Because the new generation Citea is completely designed around an electric driveline, it offers an optimal weight distribution of batteries and flexible positioning of components. The different types of vehicles also offer different types of motors: hub motors are integrated in the low floor types; a central motor is used for the low entry vehicles. For all vehicles are multiple optional battery sizes and configurations available. This makes that in all types an ideal use of space is guaranteed, to realise a maximum passenger capacity.



INNOVATIVE LIGHTWEIGHT COMPOSITE SIDEWALL.



INCREASING THE BENCHMARK NUMBER OF PASSENGERS.

Increased passenger capacity.

The optimal axle load distribution, weight distribution and the low centre of gravity of the new generation Citea realise in a maximum passenger capacity and efficient vehicle layout. Also, it improves accessibility of the bus. Due to these exceptional changes, the new generation provides a best-in-class number of seats in all vehicles.



SMART PLACEMENT OF BATTERIES.

is less in weight. This has a positive effect on the maximum passenger

capacity and passenger flow.



FULL DEPLOYMENT IN CITIES AND REGIONS.

Increased range.

The new generation Citea is ready for full deployment in all European climate regions. It's not only extensively tested in cold circumstances in Scandinavia, but also in the warm regions of the south of Europe. This guarantees customers less energy consumption and an improved range, throughout the year.

Furthermore, due to the various battery sizes and charging options the new generation Citea can be configurated in such a way that it always meets the different standards required in city and regional transport and is suitable for all types of operation.



SUITABLE FOR ALL CLIMATE REGIONS.

Extensive test program.

The new generation Citea is extensively tested on many different topics and areas. Not only has it passed a winter and summer test (to see how temperature influences the performance and range), but also on durability, safety, and driveability. Next to this, we've also run component validation tests and total system validation tests.





FLEXIBLE DEPLOYMENT DUE TO DIFFERENT CHARGING OPTIONS.

Charging options and strategies.

The new generation Citea is completely build as part of a modular system and can be adjusted to specific needs of customers. It fits flexible charging strategies, thanks to the various battery sizes and different charging options. Customers can choose from a combo 2 plug, roof-mounted- and infrastructure-mounted pantograph so that it seamlessly fits their operation.



IMPROVED AERODYNAMICS.

For less energy consumption.

To realise less energy consumption and improve the range of the vehicle, aerodynamics is very important. The design of the new generation Citea is therefore crucial; because of its high-tech lines, the wind causes less turbulence. Curves at the front, various spoilers, and the sharp angles at the rear: all play their part in a significant reduction in air resistance. The bus was intensively tested in the wind tunnel, with simulations and on the road.



Ergonomics.

BASED ON EXTENSIVE RESEARCH.

Meaningful insights to create the best result.

Improving the ergonomics for drivers was key with the new generation Citea. VDL Bus & Coach put maximum attention to the development of the driver's cabin, to create an environment that meets the needs of every driver.

Based on interviews with drivers and on research with public transport industry associations and universities, we created the optimal environment. This was validated by bus industry organisations throughout Europe and eventually developed together with strategic suppliers.



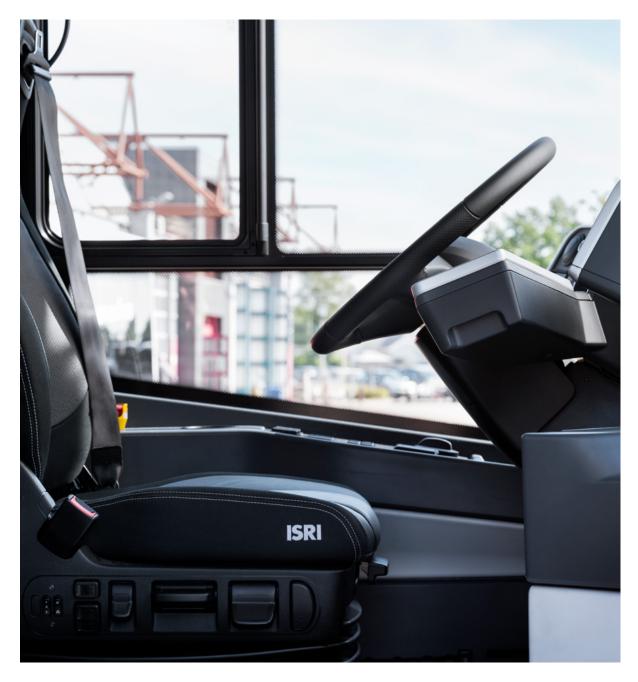
Ergonomics.

BUILD AS THE DRIVER'S WORKPLACE OF CHOICE.

Optimal driver comfort.

The new generation Citea aims to be the 'workplace of choice' for drivers. All drivers with a wide range of postures should be able to create a good and comfortable seating position. To realise this, the entire driver environment has been redesigned. It now offers a larger adjustment range and lower steering forces for steering column, as well as flexible and extensive adjustment possibilities of driver's workplace.

Furthermore, the driver interaction and safety systems have improved and it's ready for future developments in payment systems and autonomous driving.



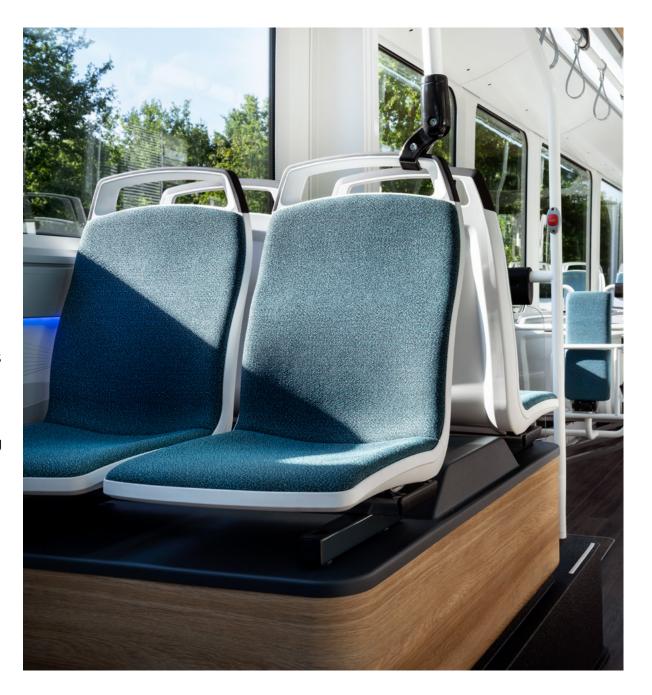
Ergonomics.

OPTIMAL PASSENGER COMFORT.

Moving more passengers in comfort.

The new generation Citea is designed with a vision on hygiene, safety, and spaciousness. With a focus on walls, the ceiling and wheel arches, the new design creates a harmonious interior.

Lighting can be easily adjusted to indicate situations and create the right atmosphere. And due to the layout in the bus, a comfortable passenger waiting space is created and all seats are accessible according to the one-step-away-principle – allowing passengers to reach all seats within one step from the aisle.





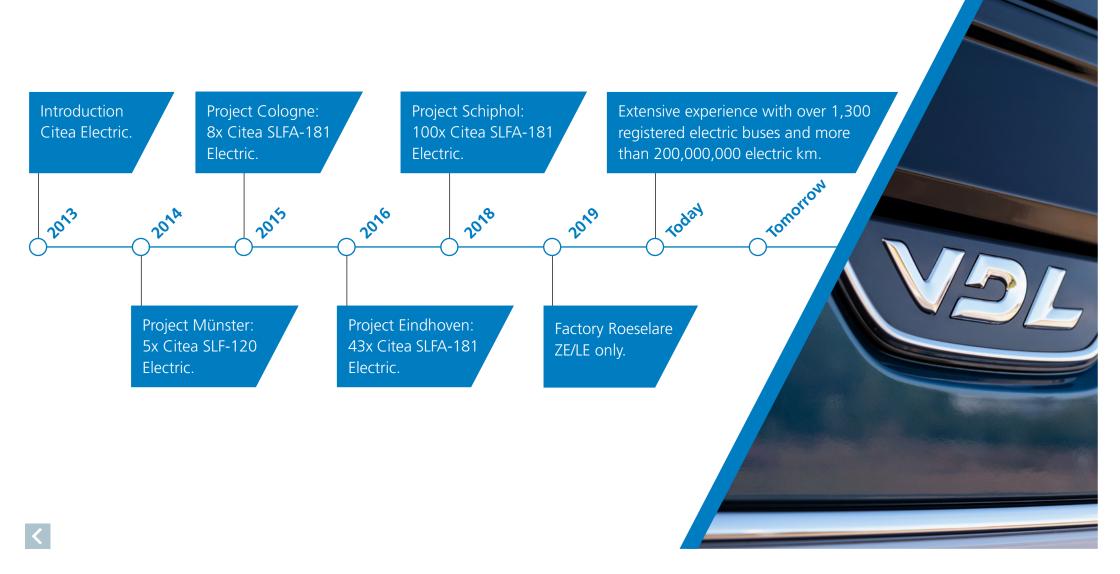
All unique selling points and the fact that the new generation Citea realises 'best in class' results on the 4 key areas, end up in a bus concept that makes the difference on many aspects. Moreover, it makes that it redefines and continues to redefine the standards while offering operators a best in class Zero Emission public transport bus, with low Total Cost of Ownership per passenger. With zero compromise.





Our milestones and experience.

VDL Bus & Coach has been at the forefront of e-mobility for years. Over the past decade, we have become Europe's frontrunner in e-mobility, with millions of electric kilometres of experience. And this goes a long way back, as we launched our first electric Citea in 2013.





Unique design.

Zero compromise also applies when it comes to the design of the new generation Citea. It is designed in close collaboration with our engineers, resulting in a well-designed bus, where form follows function. The attractive design contributes to help people choose to travel (more) with public transport.

The design of our brand-new bus has already won 2 prestigious design prizes: the Red Dot Award and the iF Design Award. Both awards are a great achievement, as Red Dot and iF are widely regarded as the most important design awards in the world. And, at the same time a perfect recognition of how the unique design of the new generation Citea also has zero compromises.







PRODUCT PORTFOLIO.

Citea LF



Citea LF-122

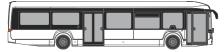


Citea LF-181

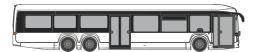
Citea LE



Citea LE-122



Citea LE-135



Citea LE-149



TECHNICAL SPECIFICATIONS.

Bus Model		Citea LF-122	Citea LF-181	Citea LE-122	Citea LE-135	Citea LE-149
Vehicle type		BEV	BEV	BEV	BEV	BEV
Bus length		12,2m	18,1m	12,2m	13,5m	14,9m
Bus width		2,55m	2,55m	2,55m	2,55m	2,55m
Bus height		3,19m	3,19m	3,19m	3,19m	3,19m
Available classes		Class 1/2	Class 1	Class 1/2	Class 1/2	Class 1/2
Maximum Passengers capacity		110	153	105	89	138
Gross vehicle weight (kg)		19,500	29,000	19,500	19,500	25,250
Climate system		Electric heat pump and optional HV and/or diesel fuel heater	Electric heat pump and optional HV and/or diesel fuel heater	Electric heat pump and optional HV and/or diesel fuel heater	Electric heat pump and optional HV and/or diesel fuel heater	Electric heat pump and optional HV and/or diesel fuel heater
	Supplier	ZF	ZF	ZF	ZF	ZF
Electric Motor	Туре	AxTrax AVE Electric portal axle	AxTrax AVE Electric portal axle	CeTrax Central Electrical Drive	CeTrax Central Electrical Drive	CeTrax Central Electrical Drive
Battery	Supplier	VDL High Energy battery				
	Max. total energy (kWh)	490	674	490	552	674
Charging system	Charging solution	CCS2, bus-mounted pantograph, infrastructure-mounted				

THE NEW
GENERATION
CITEA.

VDL Bus & Coach bv

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