

ZERO
COMPROMISE.
MOVE. TOGETHER.



The new generation

CITEA



BUS & COACH



NEW GEN CITEA

VDL

01-VDL-21

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THE NEW
GENERATION
CITEA

ZERO
COMPROMISE

Our answer to the challenges of tomorrow's public transport

The world is changing. Cities change. And mobility changes. The challenges for the cities of tomorrow, start right now. 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. The result?

VDL Bus & Coach is proud to introduce the new generation Citea: an innovative bus concept of supreme quality, completely developed from scratch and without compromises.




A dark, sleek, futuristic vehicle, possibly a bus or train, is shown in profile. The vehicle is mostly black with a prominent glowing red circular light on its side. The background is a dark, gradient sky.

New way of thinking

The development of the new generation Citea began 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, that was our approach. The new generation Citea is completely based on an electric driveline – something entirely new. And this is only one example of how the new generation Citea integrates new ways of thinking. With zero compromise.





Ready for tomorrow

The new generation Citea also boasts significant improvements in the field of sustainability, efficiency, and safety. This helps our customers to operate in the most cost-effective way. Reliably and efficiently, while optimising every aspect of the vehicle's capabilities. The new generation Citea offers customers optimal matchless platform where range, passenger capacity and optimal Total Cost of Ownership are all improved – without making any concessions.



Looking forward

We're always looking for new thinking and technologies to improve our vehicles. This approach has helped us build up extensive knowledge and expertise. And ensured the position of VDL Bus & Coach as a reliable transition partner. We partner 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. We used this knowledge to develop our new, innovative bus concept.

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



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OUR SUSTAINABLE APPROACH

The entire range of new generation Citea features a strong focus on sustainability. We have taken the concept outside the box to include optimal recyclability, the selection of materials with reduced environmental impact, a new green factory, and responsible supply chain. Because, when it comes to sustainability, we also make zero compromise.



New green factory in Roeselare

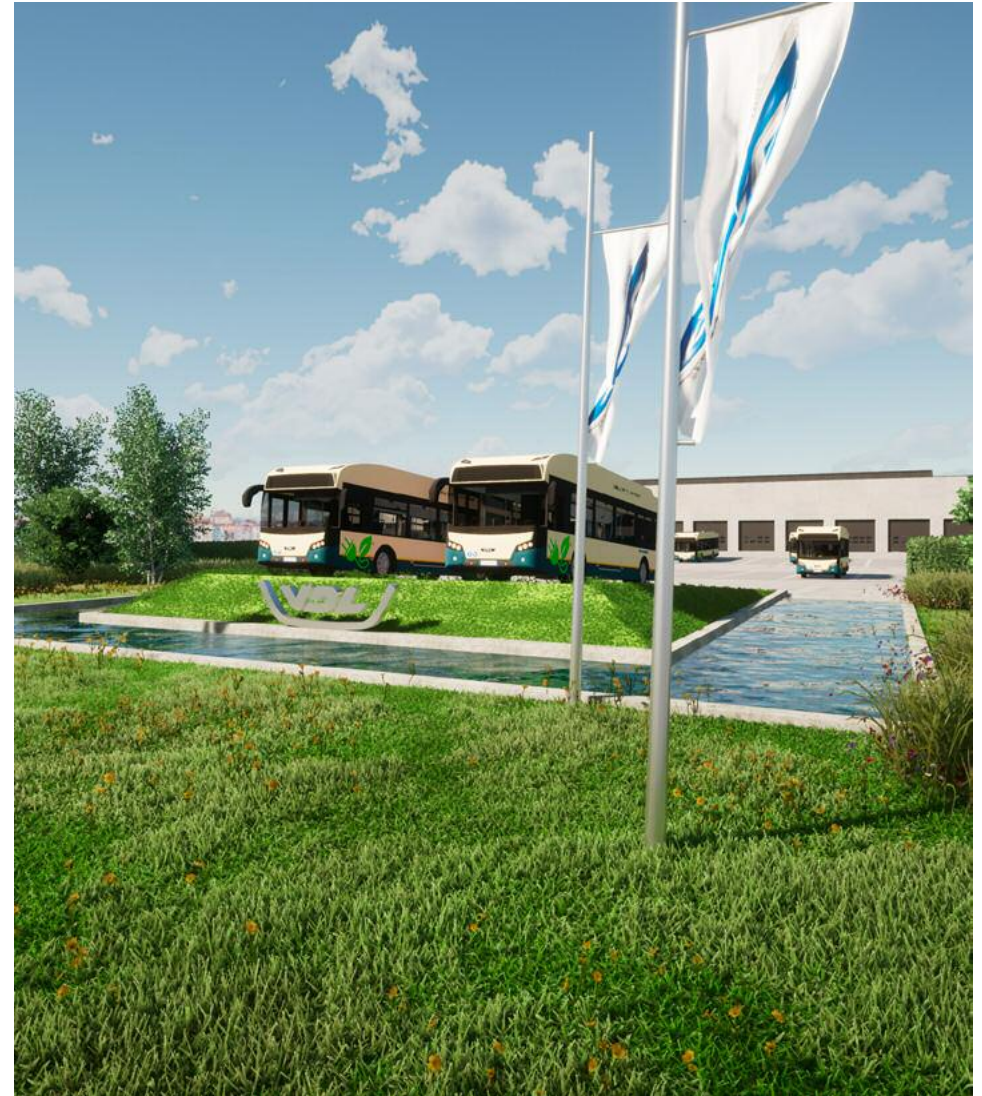
In early 2023, we will open a new green factory in Roeselare, Belgium. This new, CO₂-neutral factory will be – alongside Valkenswaard – our centre for e-mobility and the most modern bus factory in Europe. Allowing us to respond even better to the needs and demands of the European market.

Upgrade

The production hall of the new factory will cover 20,000 square metres. The production process will be compact and aimed at building an increasing number of electric buses. 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 providing our workers with extensive education and training, we will be able to double capacity in the new factory.

Green technology

Everything in the new factory is geared to building 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 a 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 its continuous search for areas in which its sustainable contribution can be improved, VDL Bus & Coach puts people first. Because, sustainable transport solutions are essential in the liveable city, which must become quieter and cleaner.

A significant component of our Citea in terms of sustainability is the battery. Local suppliers play an important role in minimising logistics and thus the ecological footprint of transport. In addition, we have selected materials with reduced environmental impact and work constantly to further optimise recyclability and reduce energy consumption.

Responsible supply chain

To improve our chain on sustainability, UNICEF will support VDL in mapping the links in the battery chain for the new generation Citea and in setting up a structure that will demonstrate VDL's contribution to the UN 17 Sustainable Developments Goals.



THE NEW
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REDEFINING THE
STANDARDS



Starting from scratch

We launched the development of the new generation Citea from scratch – literally from a blank sheet.

Because the next step of a zero-emission public transport bus demanded new technologies and a new way of thinking. We began by putting the traditional diesel bus layout aside. From that point on, we started creating the optimal electric bus platform.

Our goal: to create a platform that offered the operator an optimal solution; electric driving with zero compromise.



Redefining standards

A key feature of the new generation Citea is the totally electric driveline, suitable for every sort of deployment and climate zone. This gave us the opportunity to develop from the inside out and redefine well-established standards. New ideas included positioning the seats differently, placing the batteries in the floor, and using the optimal axis distribution as a guideline.

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 has set, and is continuing to set, 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 modular system of the new generation Citea – makes it extremely suitable for both city and regional transport. Repair and maintenance costs are reduced, and a more favourable energy consumption achieved.



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 switched off easily and safely, not only by mechanics but by security services. In addition, the mechanic can easily lower the battery modules from the floor to be individually replaced.



4 KEY
AREAS

BEST
IN CLASS

LOW ENERGY CONSUMPTION AND OPTIMUM DEPLOYMENT

- Sustainable and efficient
- Innovative climate strategy
- Maximum range

OPTIMAL DRIVER COMFORT AND ERGONOMICS

- Improved ergonomics
- Comprehensive passive and active safety systems

OPTIMUM COMFORT FOR PASSENGERS

- Improved ergonomics
- Unique experience

MAXIMUM PASSENGER CAPACITY

- Optimal axle load distribution
- Low centre of gravity
- Ideal use of space



Maximum capacity

BASED ENTIRELY ON AN ELECTRIC DRIVELINE

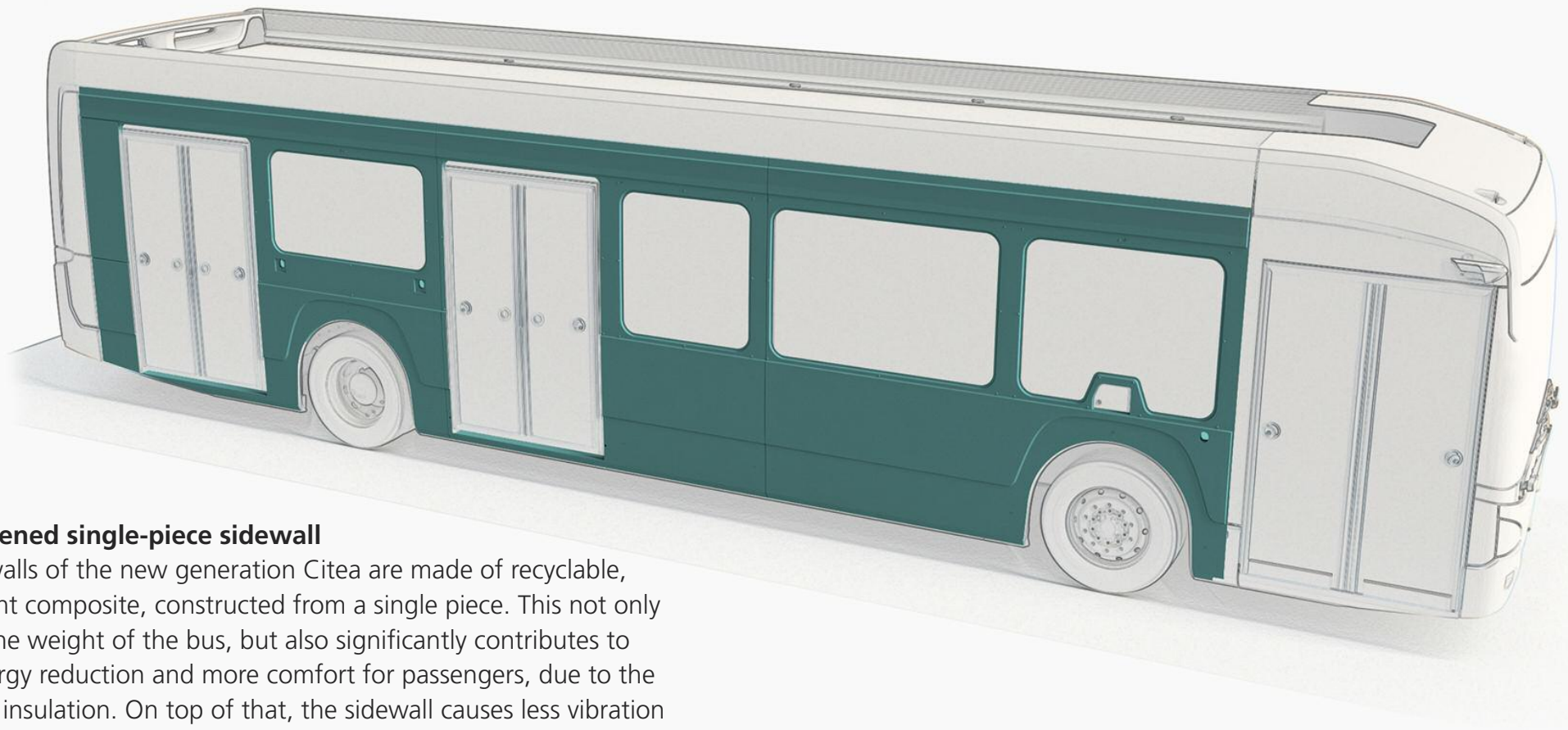
Electric driveline

The entire design of the new generation Citea around an electric driveline 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 there are multiple optional battery sizes and configurations available. This ensures that all types of vehicle guarantee an optimal use of space, to realise a maximum passenger capacity.



Maximum capacity

INNOVATIVE LIGHTWEIGHT COMPOSITE SIDEWALL



Strengthened single-piece sidewall

The sidewalls of the new generation Citea are made of recyclable, lightweight composite, constructed from a single piece. This not only reduces the weight of the bus, but also significantly contributes to more energy reduction and more comfort for passengers, due to the improved insulation. On top of that, the sidewall causes less vibration and provides integrated functionalities.



Maximum capacity

INCREASING THE BENCHMARK NUMBER OF PASSENGERS

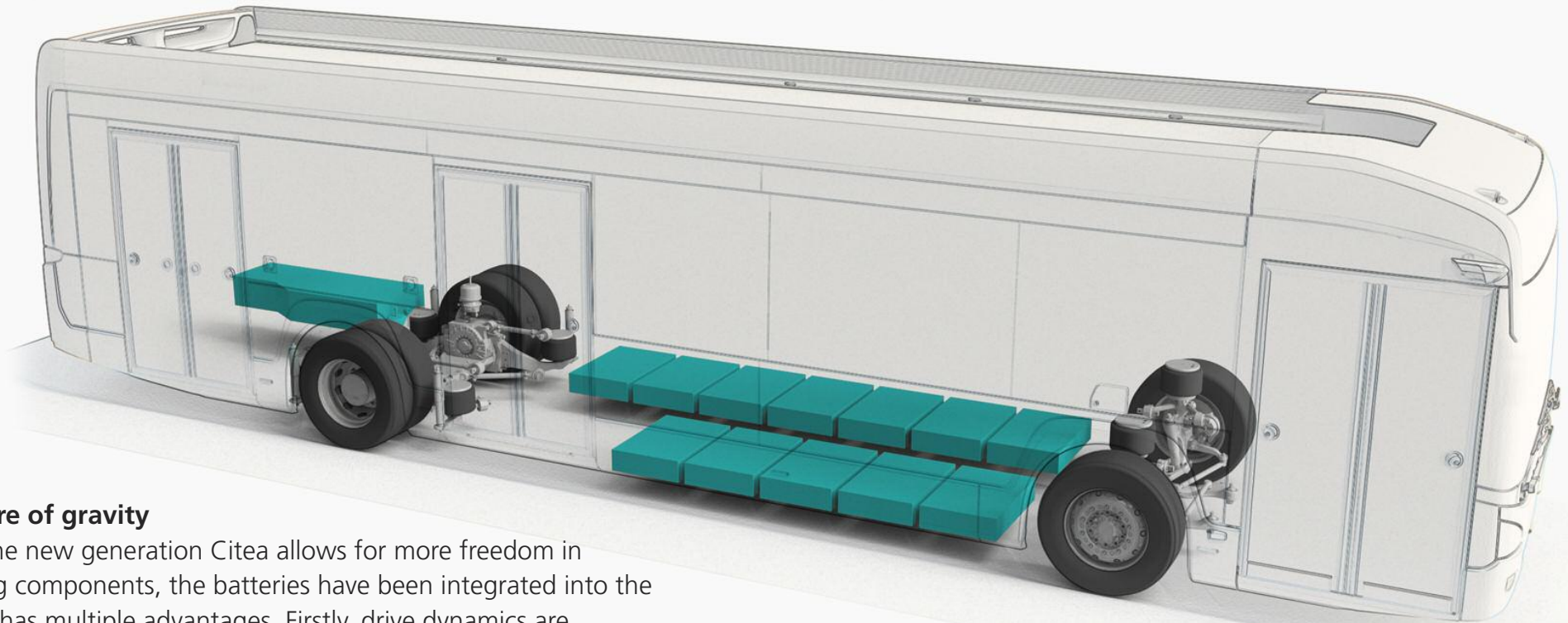
Increased passenger capacity

The optimal axle load distribution, weight distribution, and low centre of gravity of the new generation Citea result in a maximum passenger capacity and efficient vehicle layout. Accessibility of the bus is also improved. These exceptional changes provide the new generation with a best-in-class number of seats in all vehicles.



Maximum capacity

SMART PLACEMENT OF BATTERIES



Low centre of gravity

Because the new generation Citea allows for more freedom in positioning components, the batteries have been integrated into the floor. This has multiple advantages. Firstly, drive dynamics are guaranteed because of the low centre of gravity. The bus is more stable, which is more comfortable for the driver. Secondly, because less weight is placed on the roof of the bus, the roof construction can also be lighter in weight. This has a positive effect on the maximum passenger capacity and passenger flow.



Energy consumption and range

FULL DEPLOYMENT IN CITIES AND REGIONS

Increased range

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

Furthermore, thanks to the various battery sizes and charging options, the new generation Citea can be configured to always meet the different standards required in city and regional transport and be suitable for all types of operation.



Energy consumption and range

SUITABLE FOR ALL CLIMATE REGIONS

Extensive test programme

The new generation Citea has been extensively tested for many different conditions and regions. Not only has it passed a winter and summer test (to see how temperature influences the performance and range), but also passed tests on durability, safety, and driveability. In addition, our new generation Citea has impressed in component and total system validation tests.



Energy consumption and range

FLEXIBLE DEPLOYMENT THANKS TO DIFFERENT CHARGING OPTIONS

Charging options and strategies

The new generation Citea is constructed from an entirely 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 to seamlessly fit their existing operation.



Energy consumption and range

IMPROVED AERODYNAMICS

Reduced energy consumption

Aerodynamic design is crucial to the reduction in energy consumption and improvement in the range of the vehicle. The high-tech lines of the new generation Citea ensure that there is less wind turbulence. Curves at the front, various spoilers, and the sharp angles at the rear all play their part in significantly reducing air resistance. The bus has been intensively tested in the wind tunnel, with simulations and on the road.



Ergonomics

BASED ON EXTENSIVE RESEARCH

Meaningful feedback to create the best result

Improving the ergonomics for drivers is a key feature of the new generation Citea. VDL Bus & Coach has focused maximum attention on the development of the driver's cabin, to create an environment that meets the needs of every driver.

Relying on interviews with drivers and on research with public transport industry associations and universities, we have created the optimal environment. Our design has been validated by bus industry organisations throughout Europe, and ultimately developed together with strategic suppliers.



Ergonomics

CREATING THE DRIVER'S WORKPLACE OF CHOICE

Optimal driver comfort

The new generation Citea aims to be the 'workplace of choice' for drivers. Drivers with all postures should be able to create a comfortable, ergonomically designed seating position. To achieve this, the entire driver environment has been redesigned.

The design offers a larger adjustment range and lower steering forces for the steering column, as well as flexible and extensive adjustment options for the driver's workplace.

We have also improved driver interaction and safety systems, in anticipation of 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 focus on hygiene, safety, and spaciousness. The new design of sides, roof and wheel arches creates a harmonious interior.

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



THE
RESULT / LOW TCO PER
PASSENGER

Its unique selling points and 'best in class' results in the 4 key areas ensure that the new generation Citea leads the field in many aspects. Moreover, it continues to redefine existing standards while offering operators a best in class Zero Emission public transport bus, with low Total Cost of Ownership per passenger. With zero compromise.

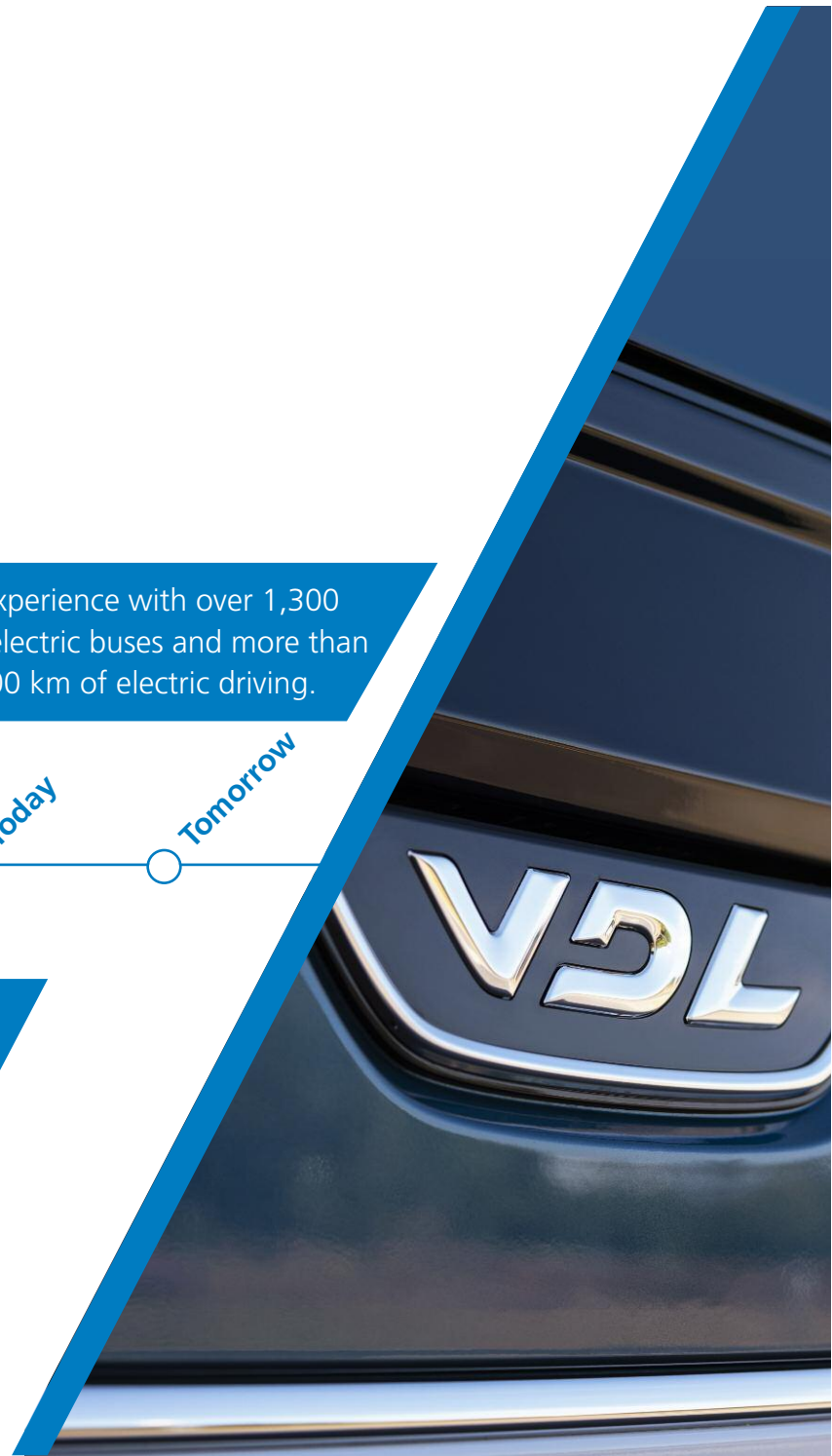
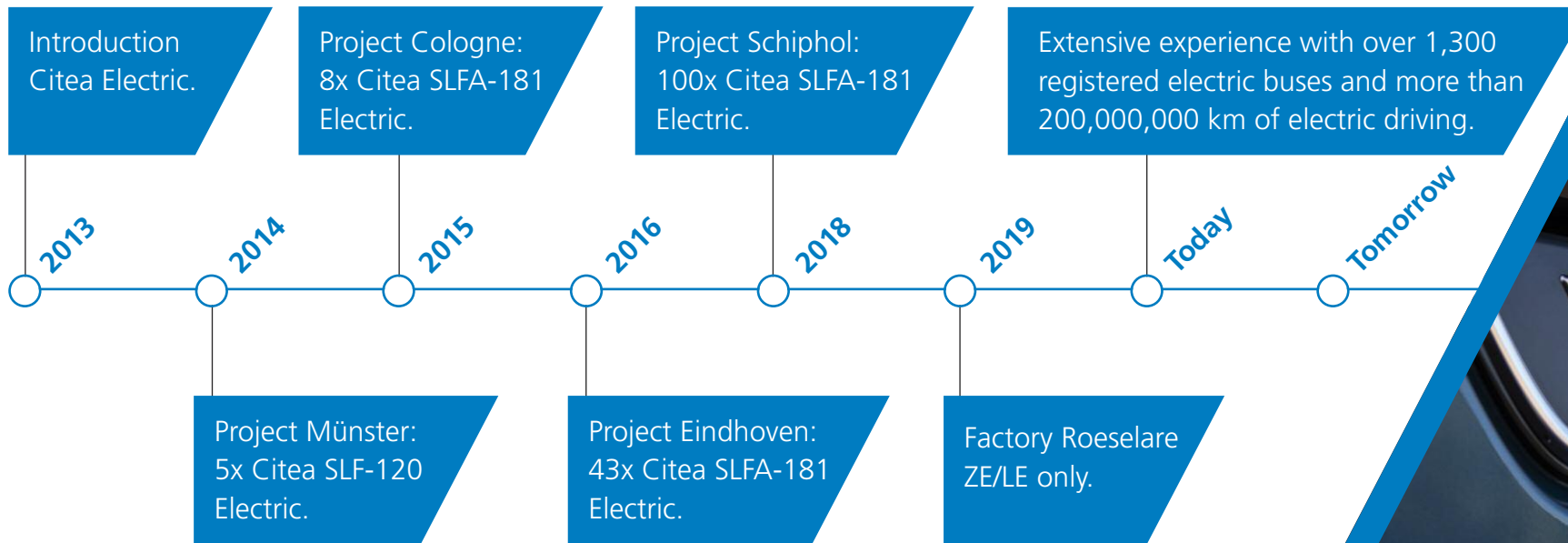


VDL
BUS & COACH / OUR MILESTONES
AND EXPERIENCE



Our milestones and experience

VDL Bus & Coach has been at the forefront of e-mobility for years. Since the launch of our first electric Citea in 2013, we have become Europe's frontrunner in e-mobility, with millions of kilometres of experience of electric driving.





Unique design

Zero compromise also applies to the design of the new generation Citea. Designed in close collaboration with our engineers, form follows function. The attractive design is a factor in people choosing to travel (more) by public transport.

Our brand-new bus has already won 2 prestigious design prizes: the Red Dot Award and the iF Design Award. These awards are a great achievement, being 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 our new generation Citea makes zero compromise.



reddot winner 2022



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PRODUCT PORTFOLIO
AND TECHNICAL
SPECIFICATIONS



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 (mm)		12,200	18,100	12,200	13,500	14,940
Bus width (mm)		2,550	2,550	2,550	2,550	2,550
Bus height (mm)		3,190	3,190	3,190	3,190	3,190
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
* depending on vehicle configuration						
Electric Motor	Supplier	ZF	ZF	ZF	ZF	ZF
	Type	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	VDL High Energy battery	VDL High Energy battery	VDL High Energy battery	VDL High Energy battery
	Max. total energy (kWh)	490	674	490	552	674
Charging system	Charging solution	CCS2, bus-mounted pantograph, infrastructure-mounted pantograph	CCS2, bus-mounted pantograph, infrastructure-mounted pantograph	CCS2, bus-mounted pantograph, infrastructure-mounted pantograph	CCS2, bus-mounted pantograph, infrastructure-mounted pantograph	CCS2, bus-mounted pantograph, infrastructure-mounted pantograph



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CONTACT

VDL Bus & Coach bv

De Vest 7, 5555 XL Valkenswaard
P.O. Box 645, 5550 AP Valkenswaard
The Netherlands
Phone +31 (0) 40 208 44 00
Fax +31 (0) 40 208 44 99
info@vdlbuscoach.com

vdlbuscoach.com



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