

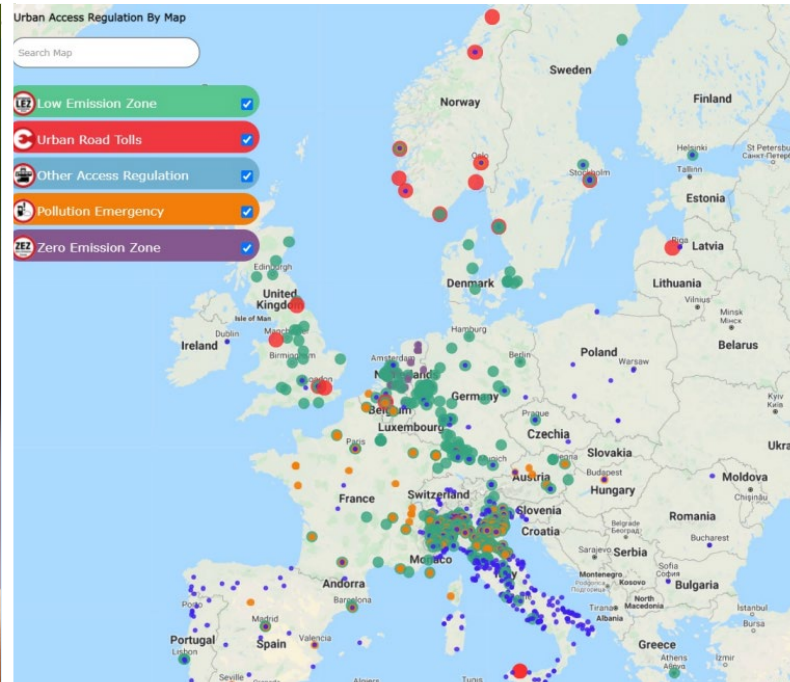
DAF – YOUR ENERGY TRANSITION PARTNER



ZERO EMISSION MARKET DRIVERS



CO₂ Reduction



**Urban Access
Regulations**

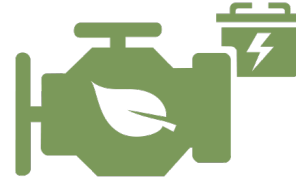


**Corporate
Sustainability**

NO 'ONE SIZE FITS ALL' SOLUTION



HVO/
e-Fuels



Hybrid



Battery-
Electric



Hydrogen



DAF COMMITMENT TO ZERO EMISSIONS ROAD TRANSPORT

2010 LF Hybrid



2018 Full Range Electric Trucks



2021 Hydrogen ICE Truck



2025 New Generation DAF Electric



OPENING ELECTRIC TRUCK ASSEMBLY



THE DECARBONIZATION EQUATION



**PRODUCT
OFFERING**

X



**GREEN ENERGY +
CHARGING
INFRASTRUCTURE**

X



**COST
PARITY**

***ZEV TRUCKS ARE NOT THE LIMITING FACTOR,
IT IS ALL ABOUT THE ENABLING CONDITIONS***

TRUCKS: REQUIRED GREEN ENERGY 2030

- 400,000 BEV trucks on the road
- 42 TWh per year
 - 17 mln households energy consumption
 - 9 new offshore windmill parks (170 each) or 11 new nuclear power plants
- 400,000 depot chargers
- 50,000 public chargers (35,000 MW chargers)
- 2,500 hydrogen refueling stations
- Current pace of charger installation too low



POWERING YOUR SUCCESS



NEW GENERATION DAF | STRATEGIC DRIVERS



THE POWER OF
SAFETY



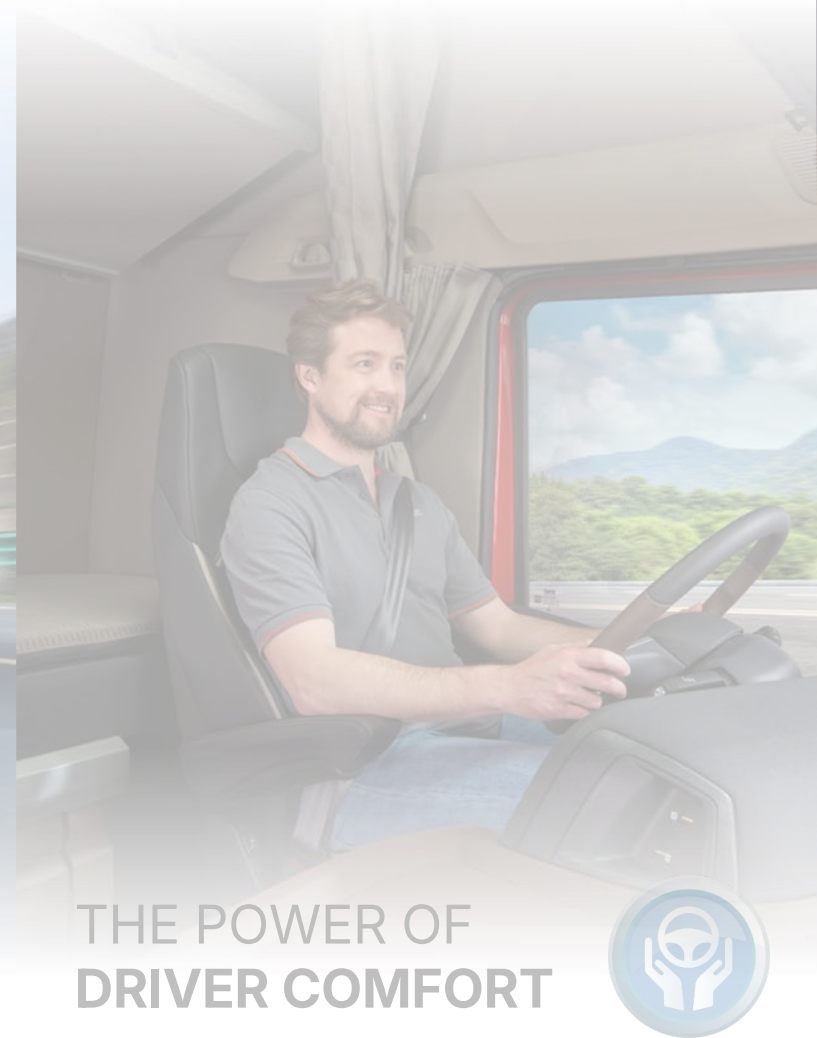
THE POWER OF
EFFICIENCY



THE POWER OF
DRIVER COMFORT



SAFETY | THE NEXT CHAPTER



THE POWER OF SAFETY

DIRECT, INDIRECT VIEW & HMI

LOW BELT LINE, KERB VIEW WINDOW,
DAF VISION SYSTEM, CORNER VIEW



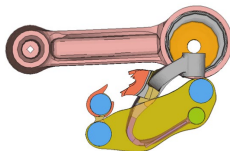
EYES ON THE ROAD, HANDS ON THE WHEEL

PASSIVE SAFETY

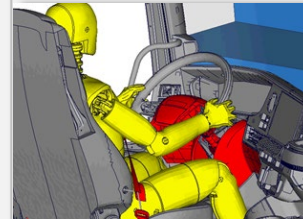
CRASH WORTHINESS



ProCaDis



CoDeS



ACTIVE SAFETY

AEBS, DAF TURN ASSIST, DRIVE-OFF ASSIST, ...



NEW GENERATION DAF | STRATEGIC DRIVERS



THE POWER OF
SAFETY



THE POWER OF
EFFICIENCY



THE POWER OF
DRIVER COMFORT



THE POWER OF EFFICIENCY

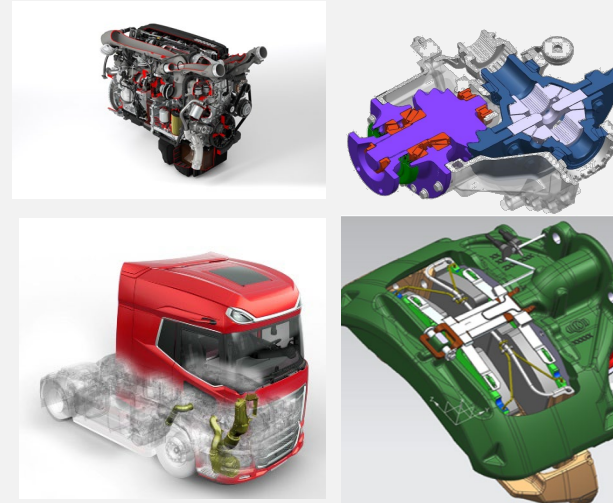
AERODYNAMICS

OPTIMAL RADII, TAPERING, SEALING AND UNDERHOOD AIRFLOW



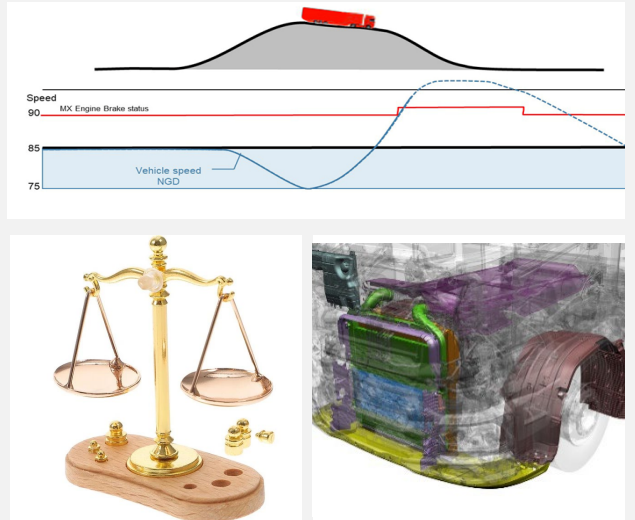
DRIVELINE

OPTIMAL EFFICIENCY OF THE ENGINE, TRANSMISSION & AXLES



SMART CONTROLS, COOLING

PCC3 WITH OPTIMAL COOLING & KERBWEIGHT



NEW GENERATION DAF | STRATEGIC DRIVERS



THE POWER OF
EFFICIENCY



THE POWER OF
SAFETY



THE POWER OF
DRIVER COMFORT



NEW GENERATION DAF | THE POWER OF COMFORT

Driving



Working



Resting/Sleeping



NEW GENERATION DAF | THE POWER OF COMFORT

- Biggest and most comfortable cabs in the industry throughout the range
- Lowest interior noise levels
- Best in class ride quality
- Superb handling



NEW GENERATION DAF



NEW GENERATION DAF



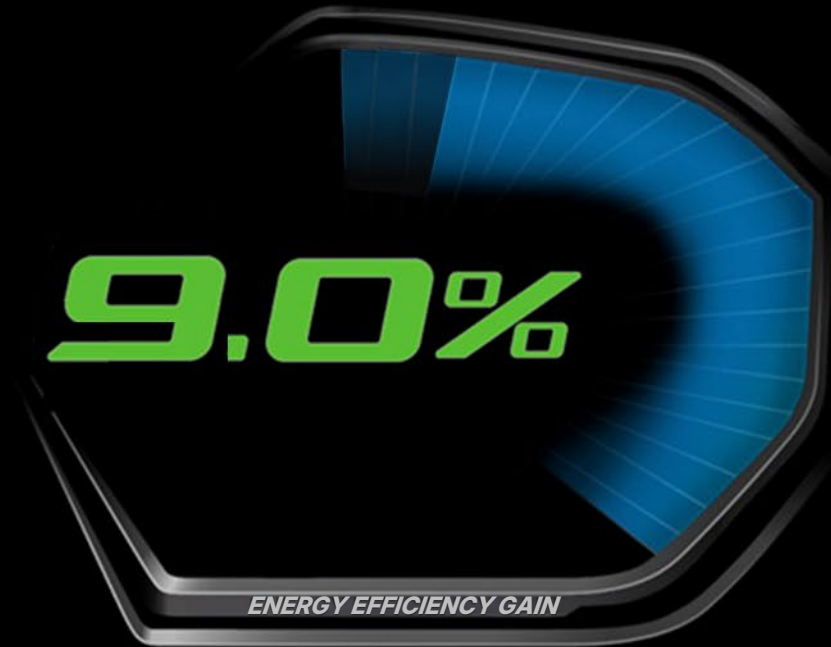
THE POWER OF EFFICIENCY | NEW GENERATION DAF

- Optimal aerodynamics
- Driveline optimizations
 - Engine
 - Transmission
 - Rear axle
- New predictive features
- Lower kerb weight
- Efficient cooling system



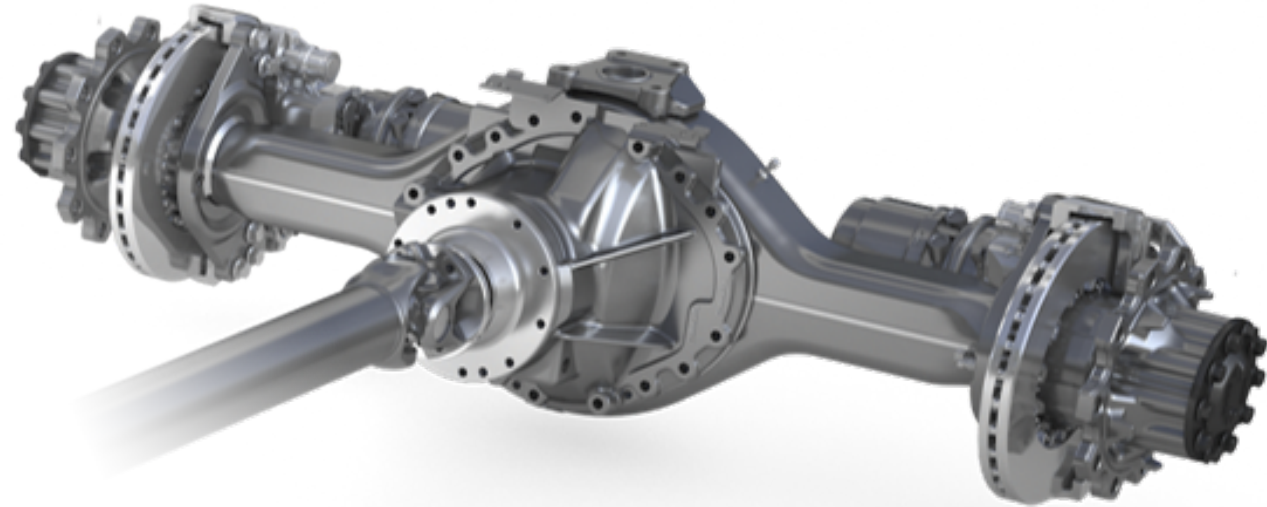
THE POWER OF EFFICIENCY | NEW GENERATION ELECTRIC

- Optimal aerodynamics
- Driveline optimizations
 - Engine
 - Transmission
 - Rear axle
- New predictive features
- Lower kerb weight
- Efficient cooling system



THE POWER OF EFFICIENCY | BATTERY ELECTRIC

- Driveline efficiency
 - Rear axle efficiency
 - Brake system optimizations
- Efficient 1344 & 1347 axles
 - Grinded design
 - Ratios from 2.05 to 2.64
 - Small pinion offset
 - Active Caliper Release (ACR)
 - Result in highest efficiency possible



THE POWER OF EFFICIENCY | BATTERY ELECTRIC

- Driveline efficiency
 - Rear axle efficiency
 - Brake system optimizations
- Aerodynamica
 - Built-in-design
 - Aero packages
- Of even greater value for BEVs
 - Energy efficiency
 - Range





NEW GENERATION DAF | ELECTRIC MODEL OVERVIEW



XB 12t PACCAR EX-M1 (120 kW)
XB 16t PACCAR EX-M2 (190 kW)
XB 19t PACCAR EX-M2 (190 kW)

Battery packs

	1	2	
141	210 / 282	kWh	
	210 / 282	kWh	
	210 / 282	kWh	



Day Cab



Extended Day Cab



XD 170 PACCAR EX-D1 (170 kW)
XD 220 PACCAR EX-D1 (220 kW)
XD 270 PACCAR EX-D1 (270 kW)

XD 270 PACCAR EX-D2 (270 kW)
XD 310 PACCAR EX-D2 (310 kW)
XD 350 PACCAR EX-D2 (350 kW)

	2	3	4	5	
210	315	420	525	kWh	
	315	420	525	kWh	
	315	420	525	kWh	



Day Cab



Sleeper Cab



Sleeper High Cab



XF 270 PACCAR EX-D2 (270 kW)
XF 310 PACCAR EX-D2 (310 kW)
XF 350 PACCAR EX-D2 (350 kW)

	3	4	5	
315	420	525	kWh	
	420	525	kWh	
	420	525	kWh	









Sleeper Cab



Sleeper High Cab

NEW GENERATION DAF | ELECTRIC MODEL OVERVIEW

Rigid chassis

FA 4x2		
FAG 6x2		
FAN 6x2		

XB
eChassis

XD
eChassis

XF
eChassis

•	•
	•
•	•

Tractor chassis

FT 4x2		
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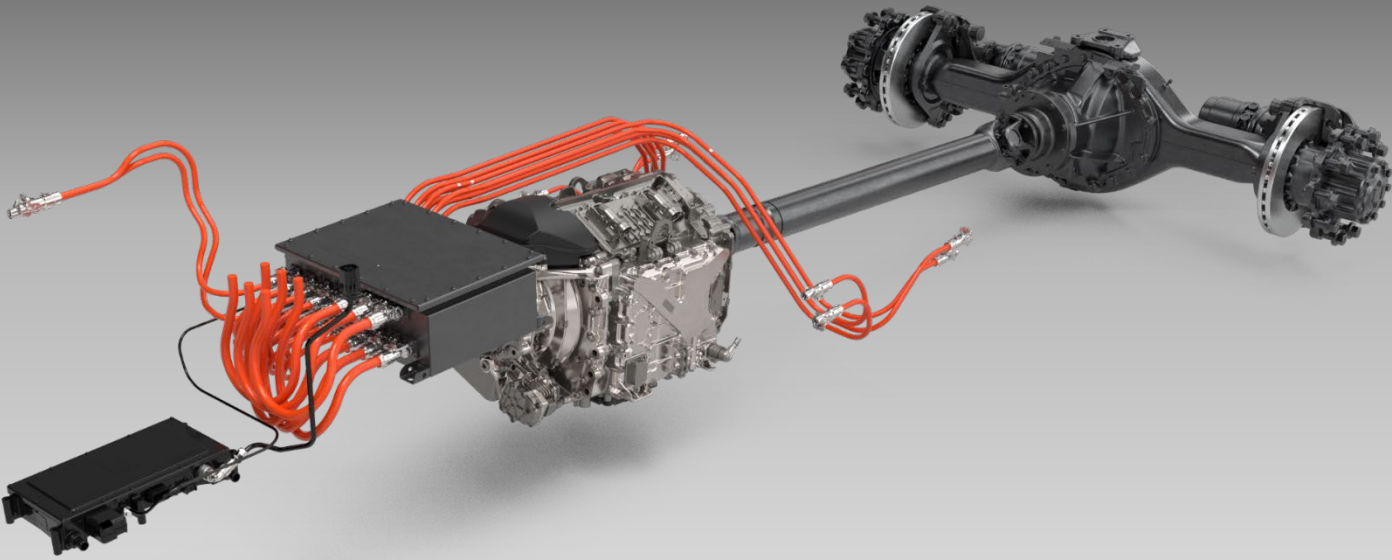
XB
eChassis

XD
eChassis

XF
eChassis

•	•
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POWERTRAIN



BATTERY TECHNOLOGY

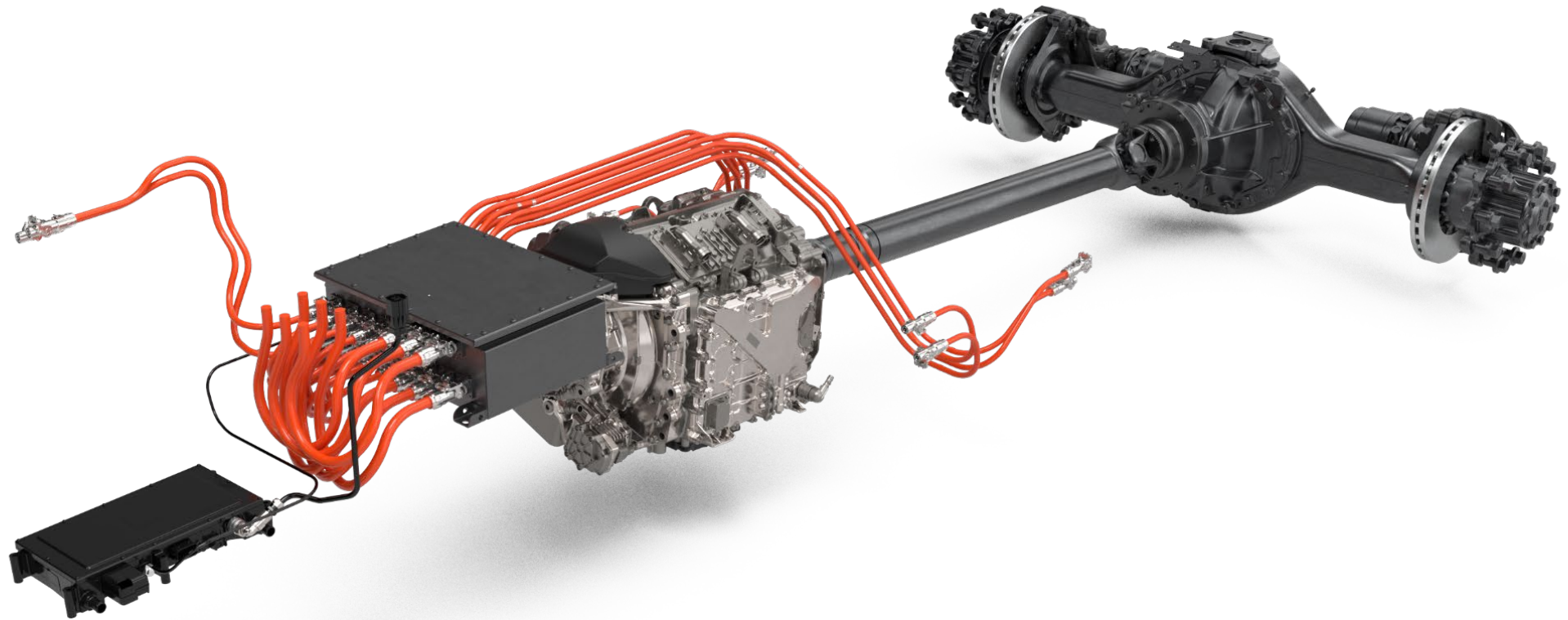
E-TECHNOLOGY

CHASSIS LAYOUT

DRIVEABILITY & HMI

SERVICES

PACCAR EX- D1/D2 | DAF XD, XF



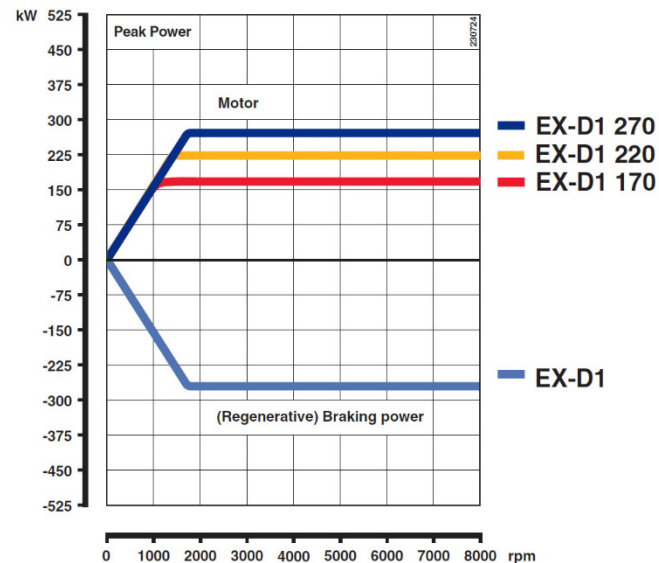
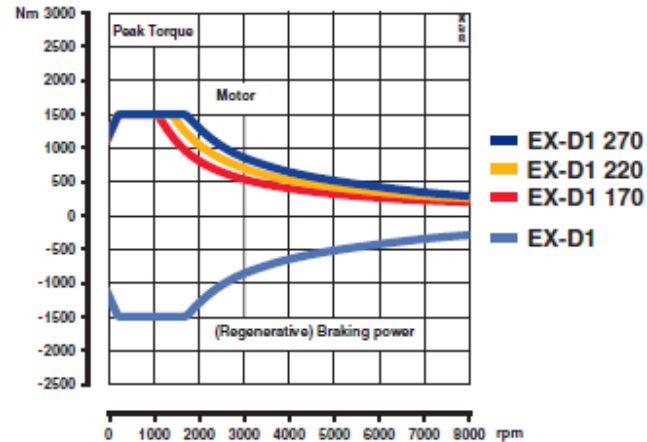
PACCAR EX- D1/D2 | DAF XD, XF



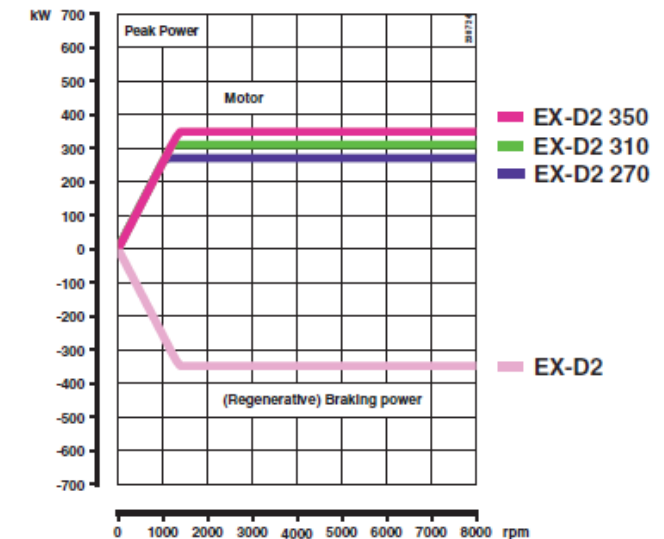
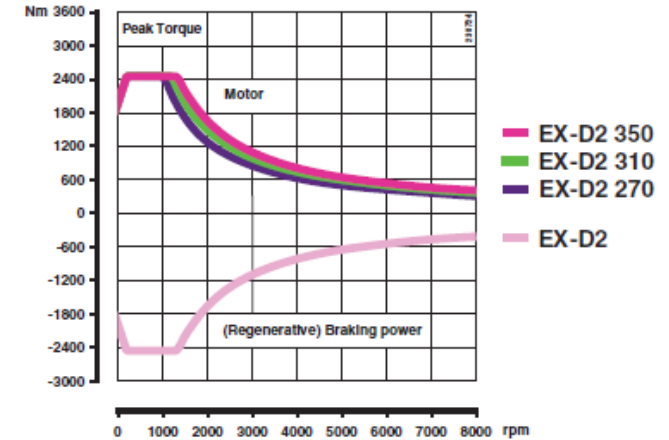
- Compact unit
- Dual E-motors
- Dual inverters
 - Silicon carbide
- 3-speed integrated transmission
 - 1st 10.00:1, 2nd 7.92:1, 3rd 3.25:1
- Power levels
 - EX-D1: 170/220/270 kW
 - EX-D2: 270/310/350 kW
- GCW up to 50t

E-POWERTRAIN | MODULAR CONCEPT XD & XF

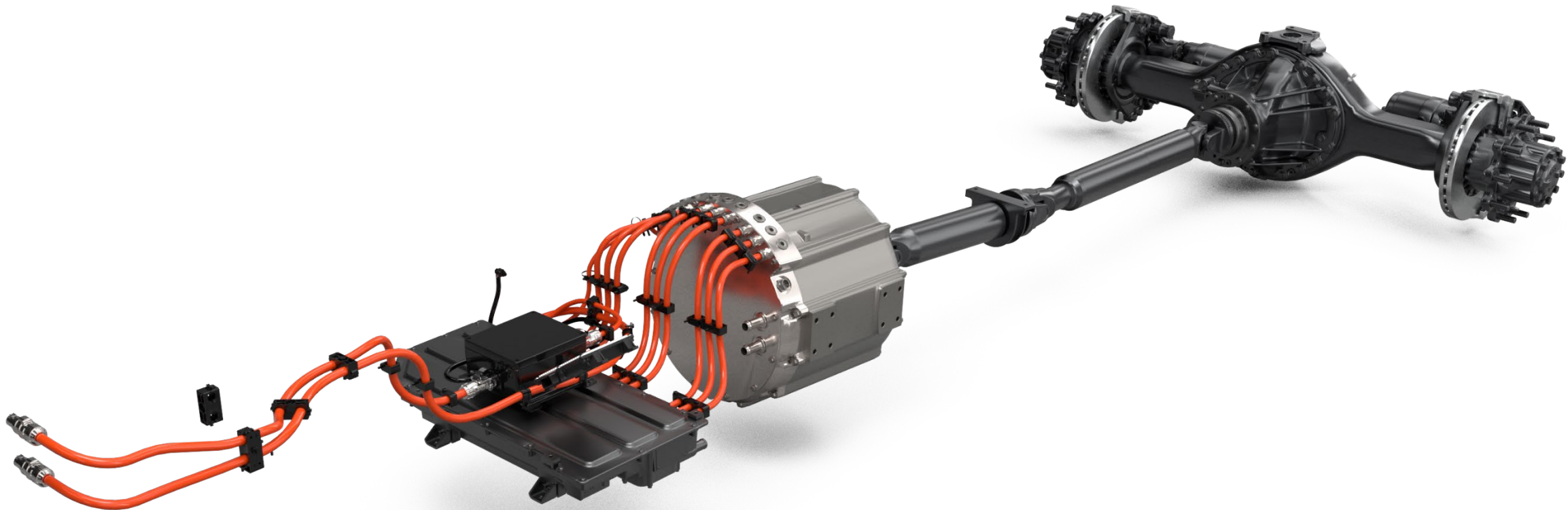
PACCAR EX-D1



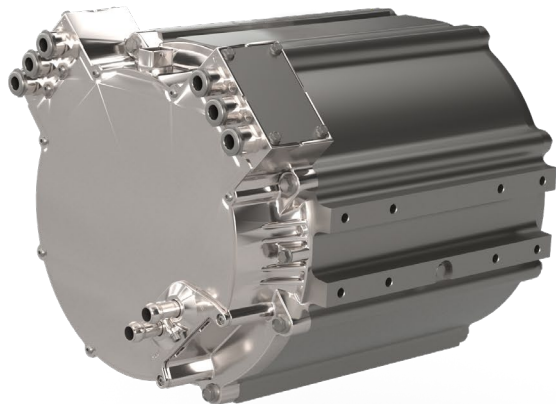
PACCAR EX-D2



PACCAR EX-M1 & EX-M2 | DAF XB



PACCAR EX-M1 & EX-M2 | DAF XB



EX-M1

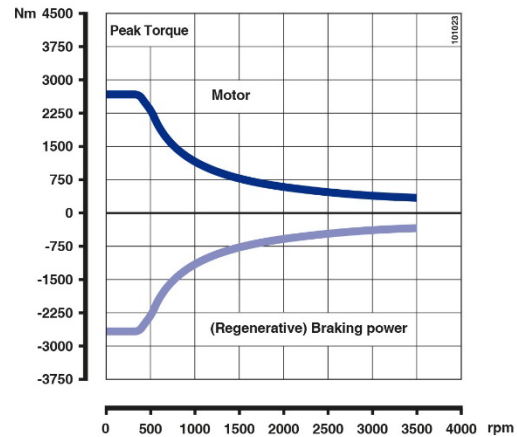


EX-M2

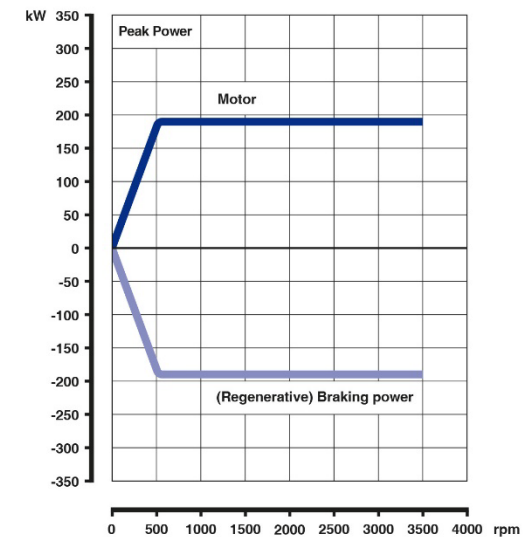
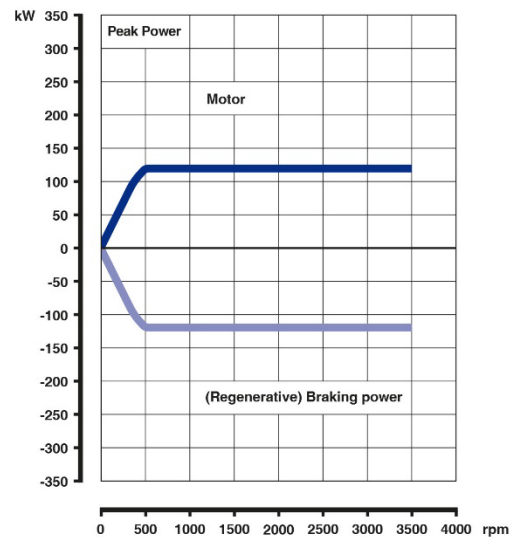
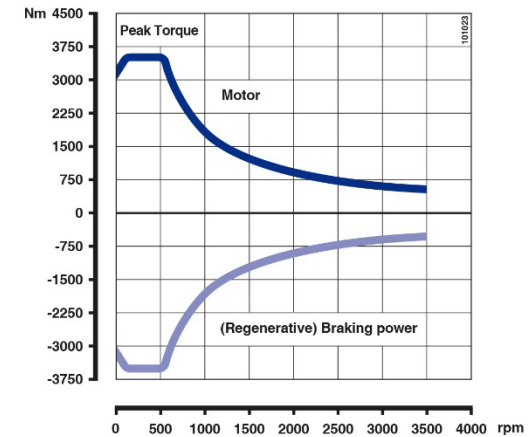
- Compact unit
- Dual E-motors
- Direct drive
- Power levels
 - EX-M1: 120 kW
 - EX-M2: 190 kW
 - High torque at low revs
- High efficiency
- GVW up to 19t

E-POWERTRAIN | MODULAR CONCEPT XB

PACCAR EX-M1 120

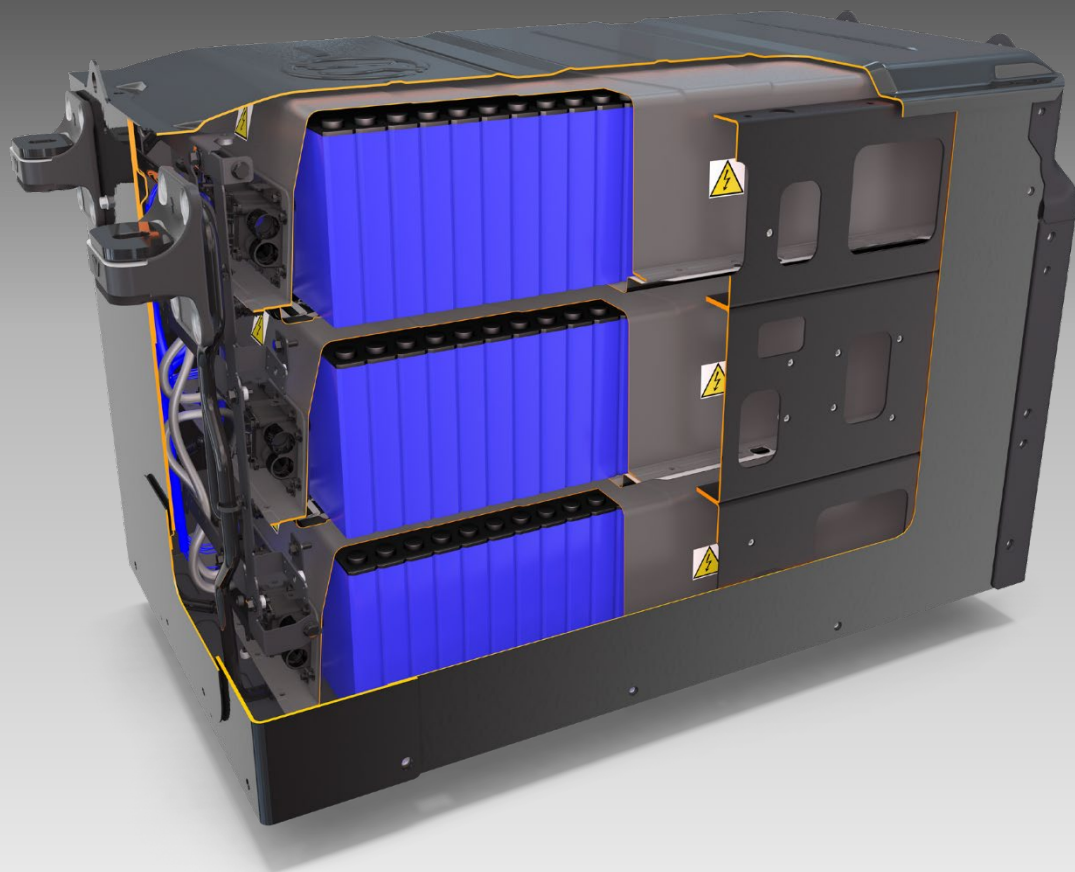


PACCAR EX-M2 190



POWERTRAIN

BATTERY TECHNOLOGY



E-TECHNOLOGY

CHASSIS LAYOUT

DRIVEABILITY & HMI

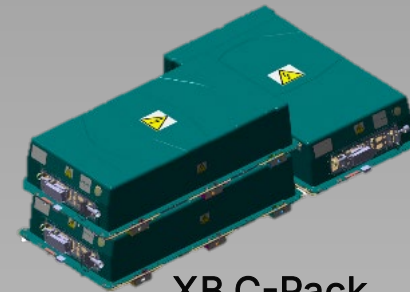
SERVICES

HIGH VOLTAGE BATTERY OPTIONS

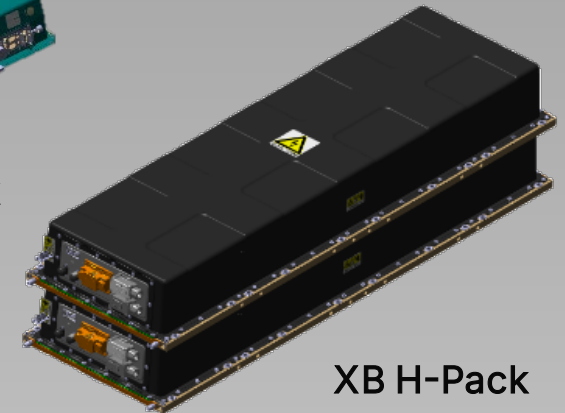
- DAF Heavy Duty XD, XF
 - 2 to 5 battery packs: 3 layer set-up
 - Each pack = 3 sub packs from 35 kWh each
 - Each pack provides 105 kWh
- DAF Medium Duty XB
 - 1 to 2 battery packs: 2 layer set-up
 - 2 options
 - C-pack: 3 sub packs from 35 kW/h each (105 kW/h)
 - H-pack: 2 sub packs from 35 kW/h each (70 kW/h)
- Individual relay box per battery pack for highest safety



XD & XF
C-Pack



XB C-Pack



XB H-Pack

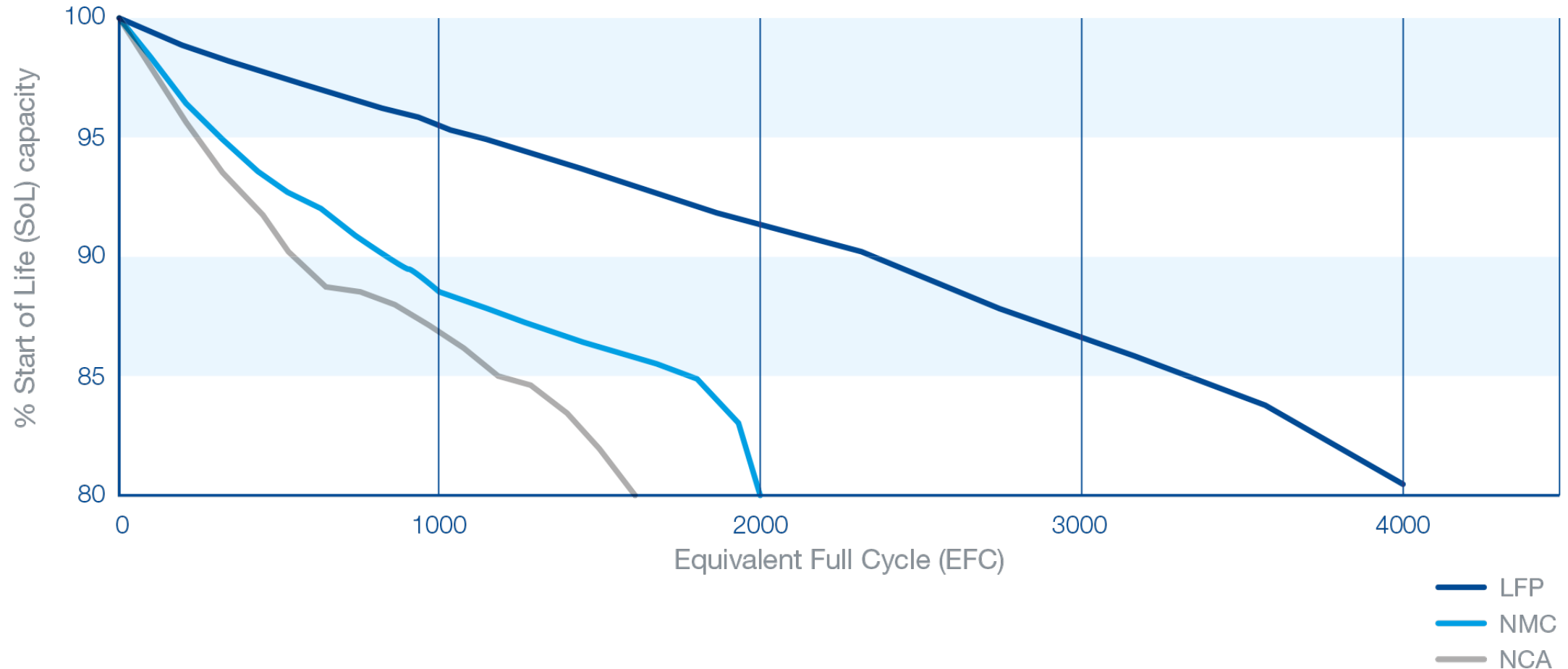
HV BATTERIES | LFP CHEMISTRY

- Best in class design life
 - >4,000 cycles
 - 8-year warranty
 - Daily charging up to 100% without lifetime impact
- Best in class safety
 - Superior thermal stability
 - Cell placement in pack without spacing
- Future proof
 - Cobalt free chemistry
- Competitive energy density
 - Cell-to-Pack technology for competitive energy density at pack level



HV BATTERIES | SUPERIOR LFP DURABILITY

Estimated State of Health (SoH) of different battery chemistries



E-POWERTRAIN | RANGE



Application

City Distribution



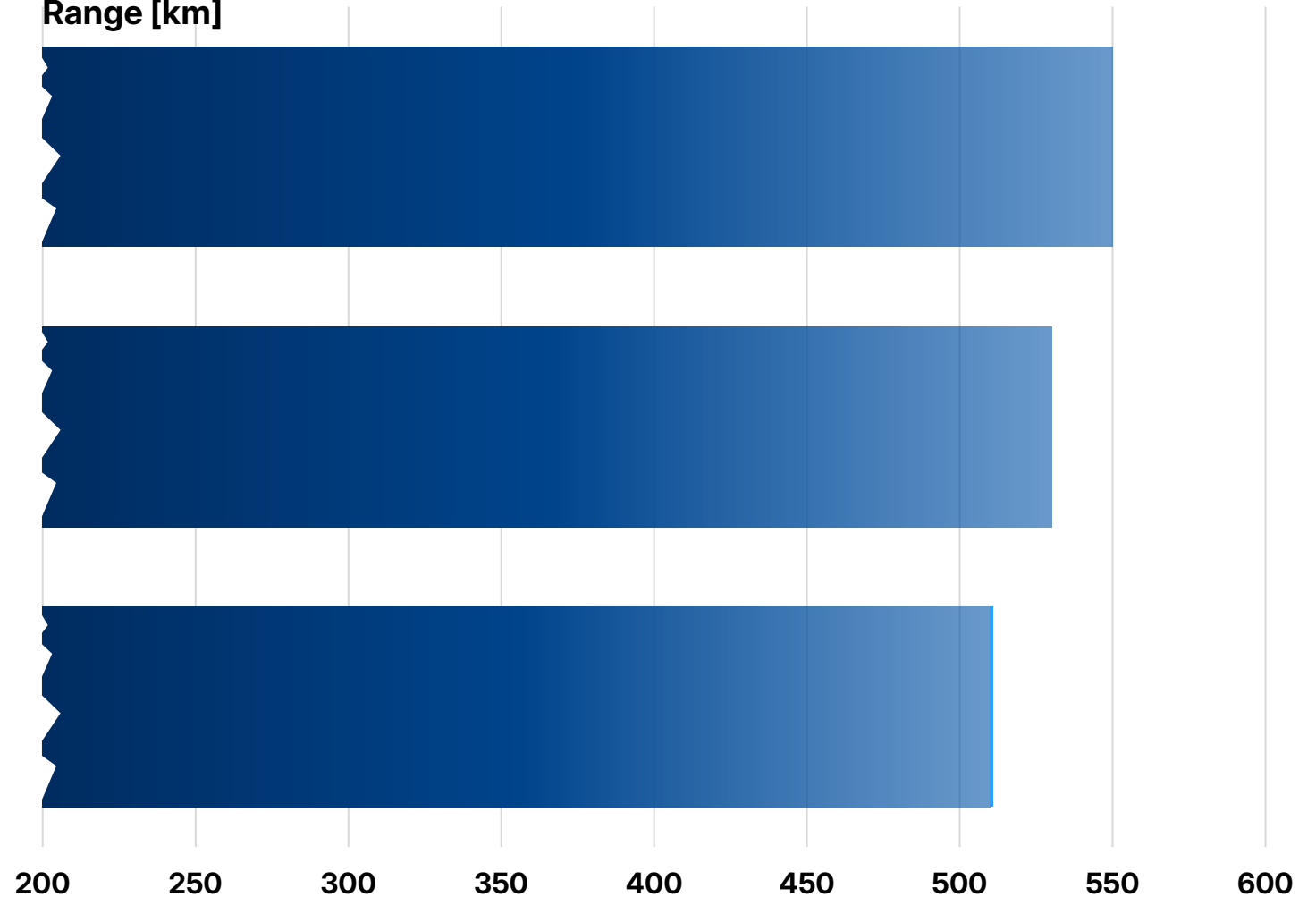
Supermarket/
Regional



Long Distance



Range [km]



CHARGING

- Vehicle charging options:
 - Standard 150 kW DC
 - Optional 150 kW DC + 22 kW AC (On-board charger*)
 - Optional 325 kW DC + 22 kW AC (On-board charger)
- Automatic low voltage charging
 - Automatic charging Low Voltage (24V on-board) from HV batteries

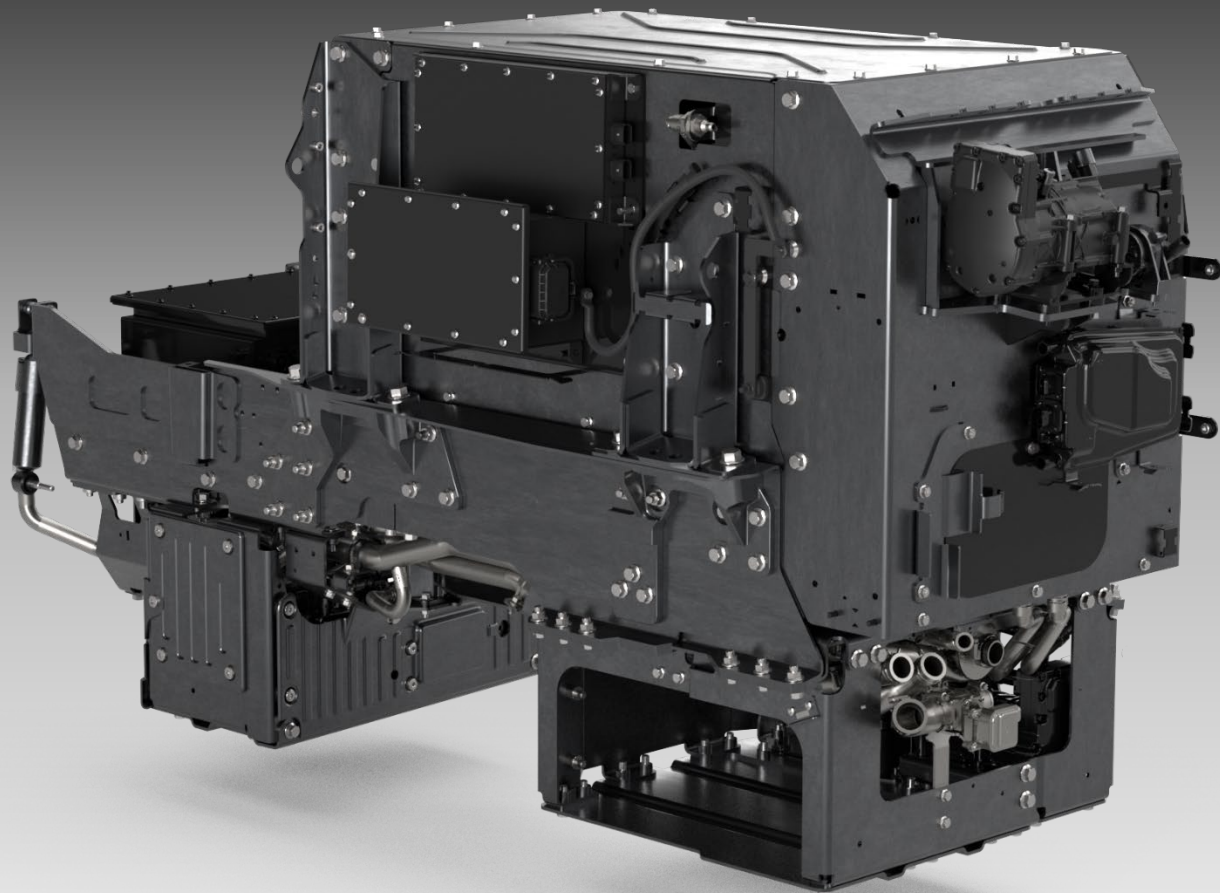
**On Board Charger standard on XB*



POWERTRAIN

BATTERY TECHNOLOGY

E-TECHNOLOGY

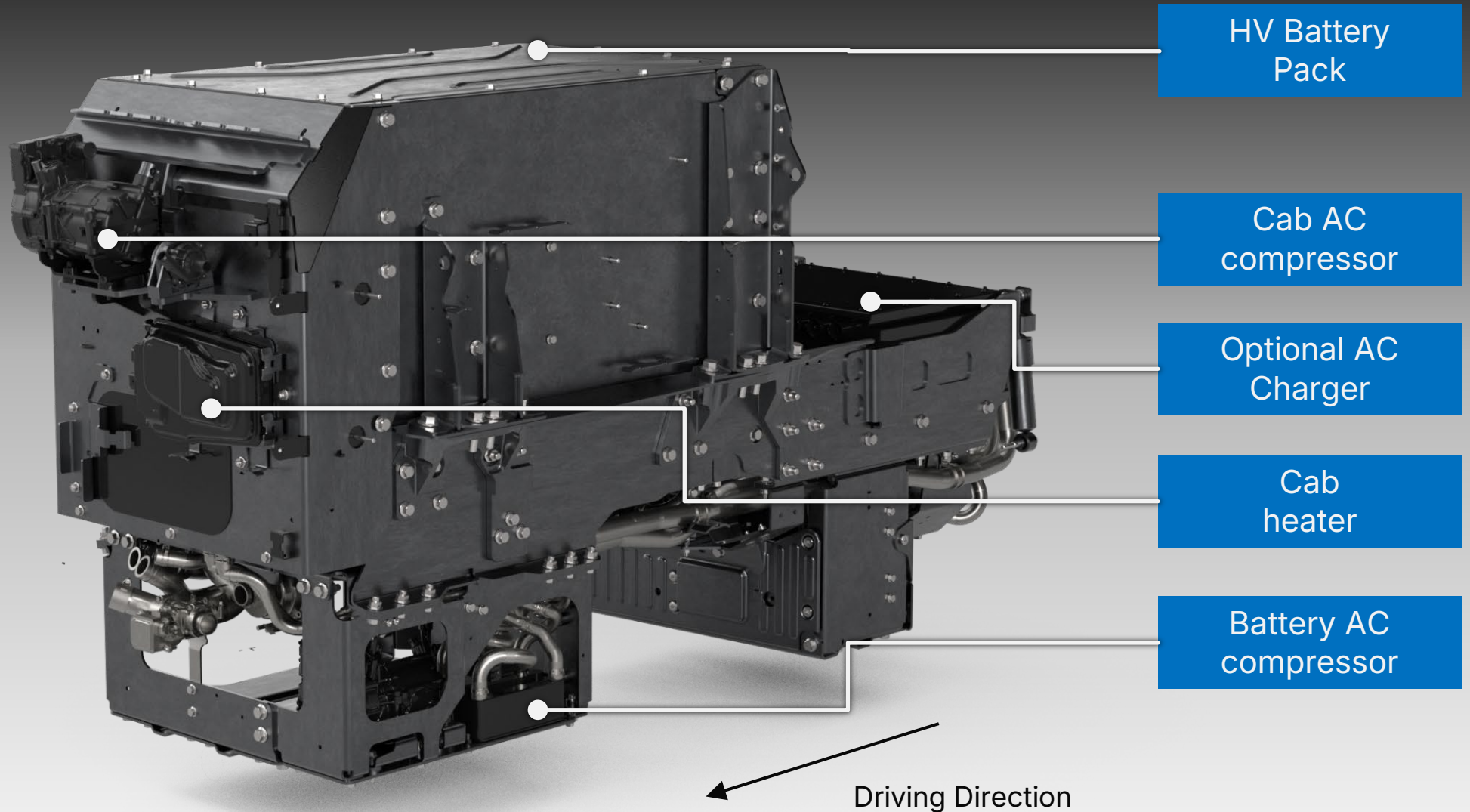


CHASSIS LAYOUT

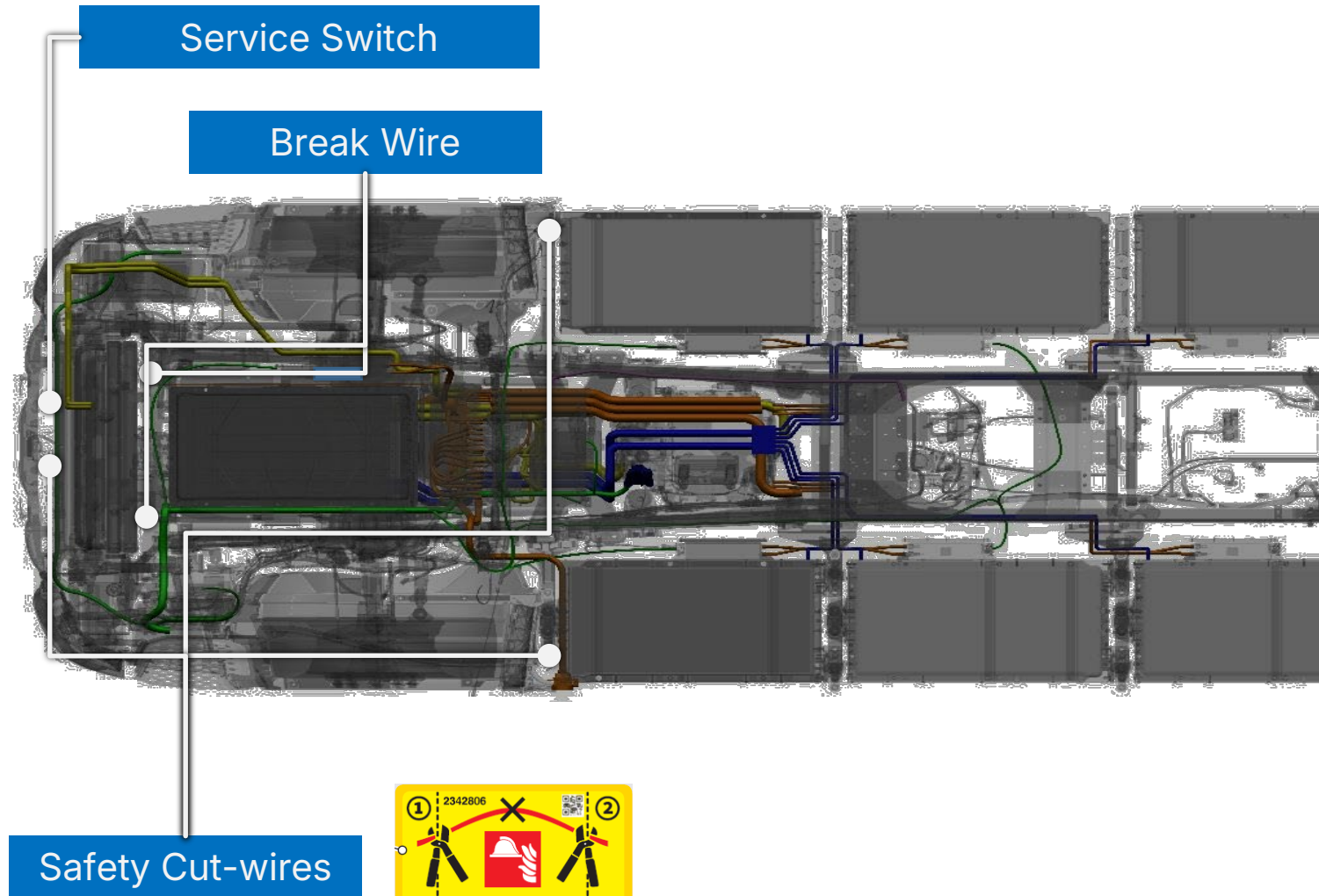
DRIVEABILITY & HMI

SERVICES

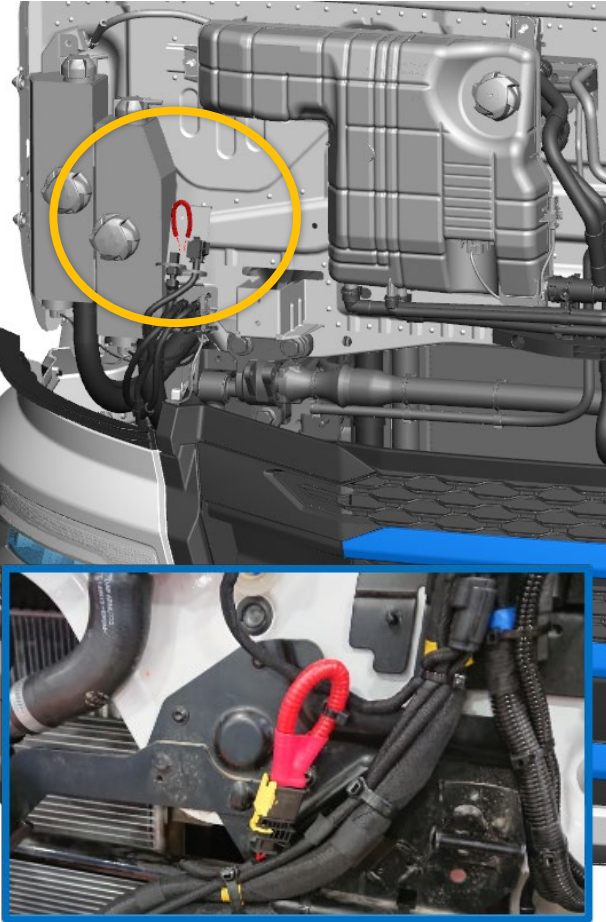
DAF ELECTRIC | E-DRIVE MODULE



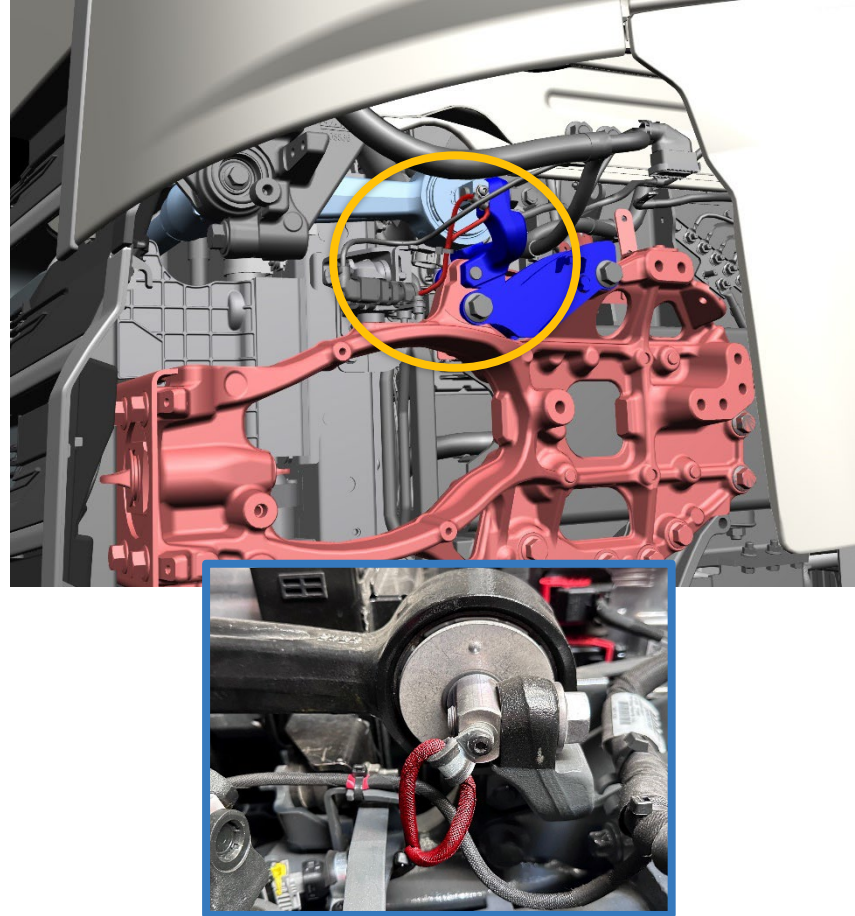
DAF ELECTRIC | E-SAFETY



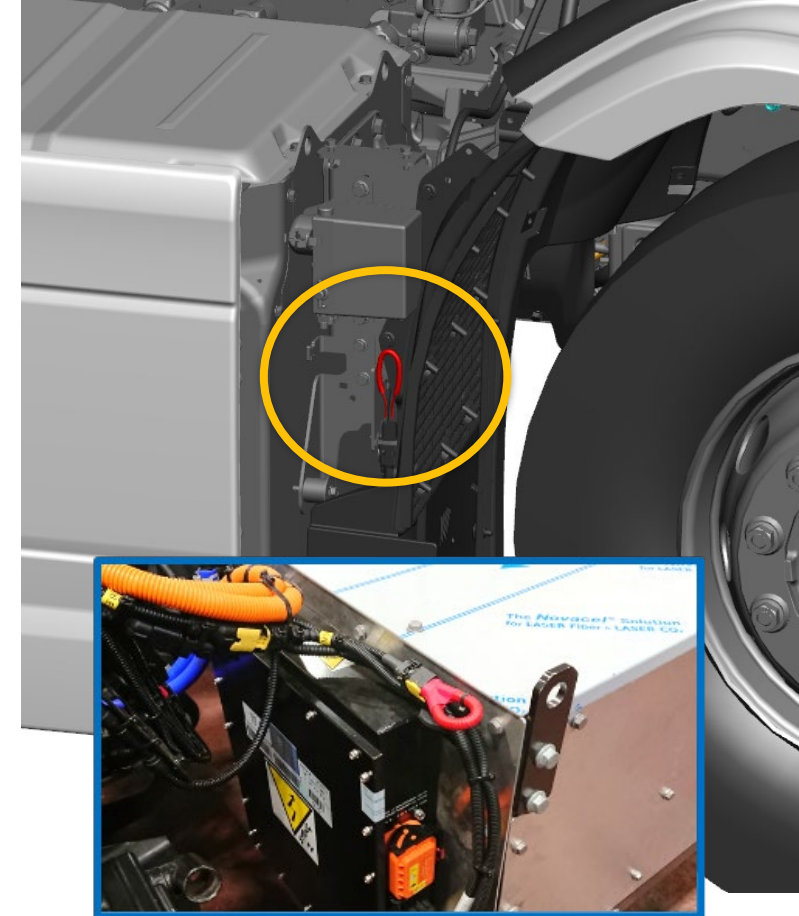
DAF ELECTRIC | E-SAFETY



**Emergency Cut Wire
Front**




Emergency Break Wire




**Emergency Cut Wire
Left & Right**

DAF ELECTRIC | INTELLIGENT 'ONE PEDAL DRIVE'



 Driving/powering

 Braking

XD & XF



XB

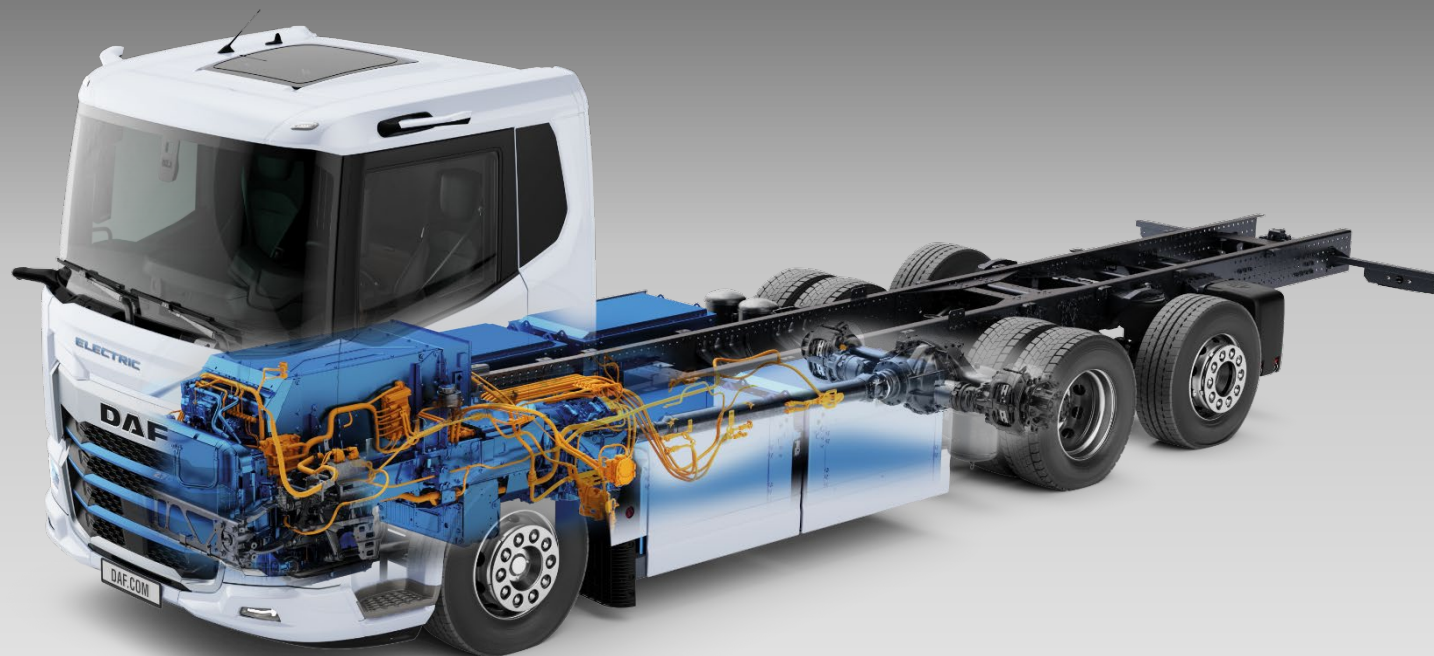


POWERTRAIN

BATTERY TECHNOLOGY

E-TECHNOLOGY

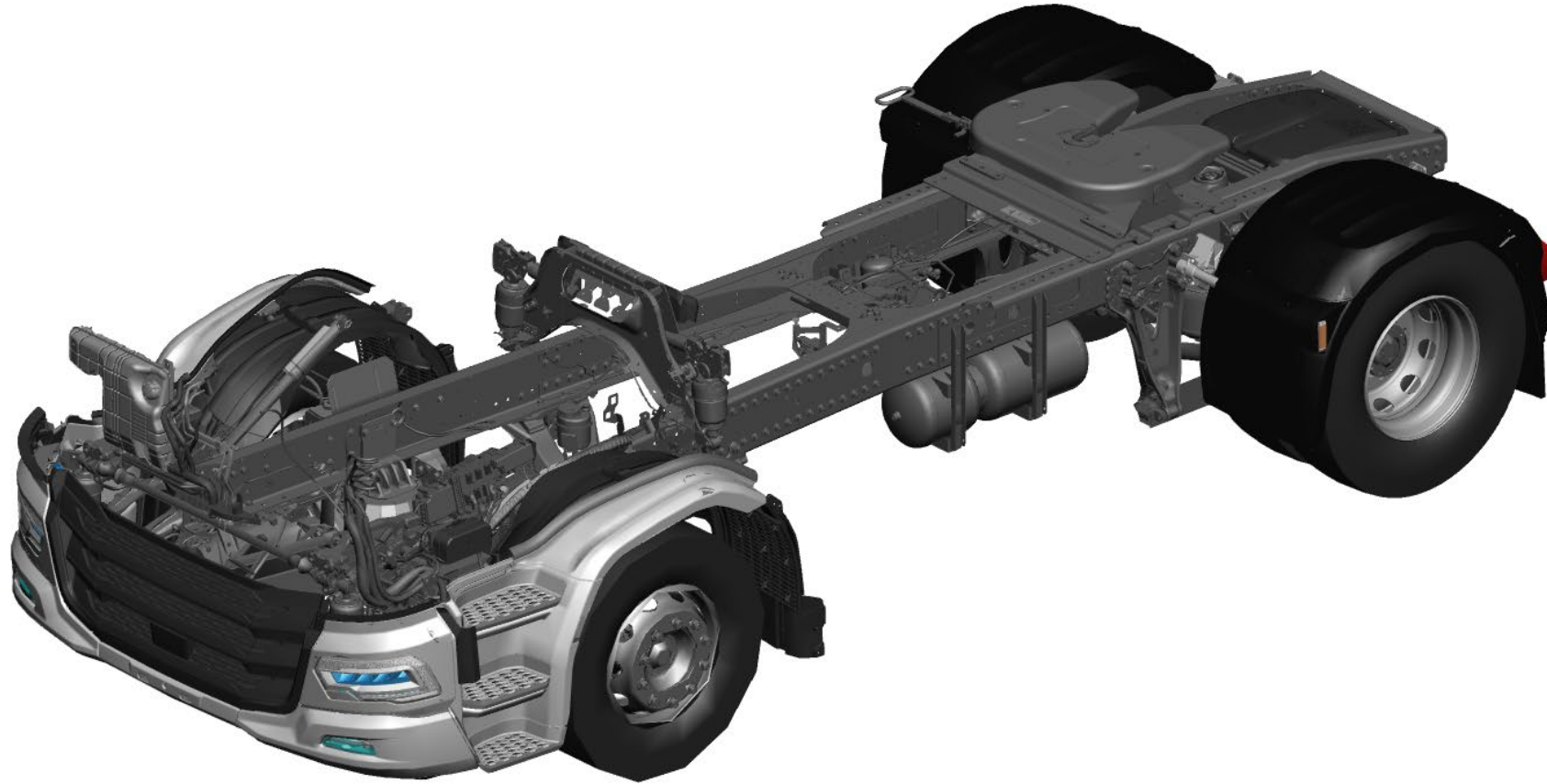
CHASSIS LAYOUT



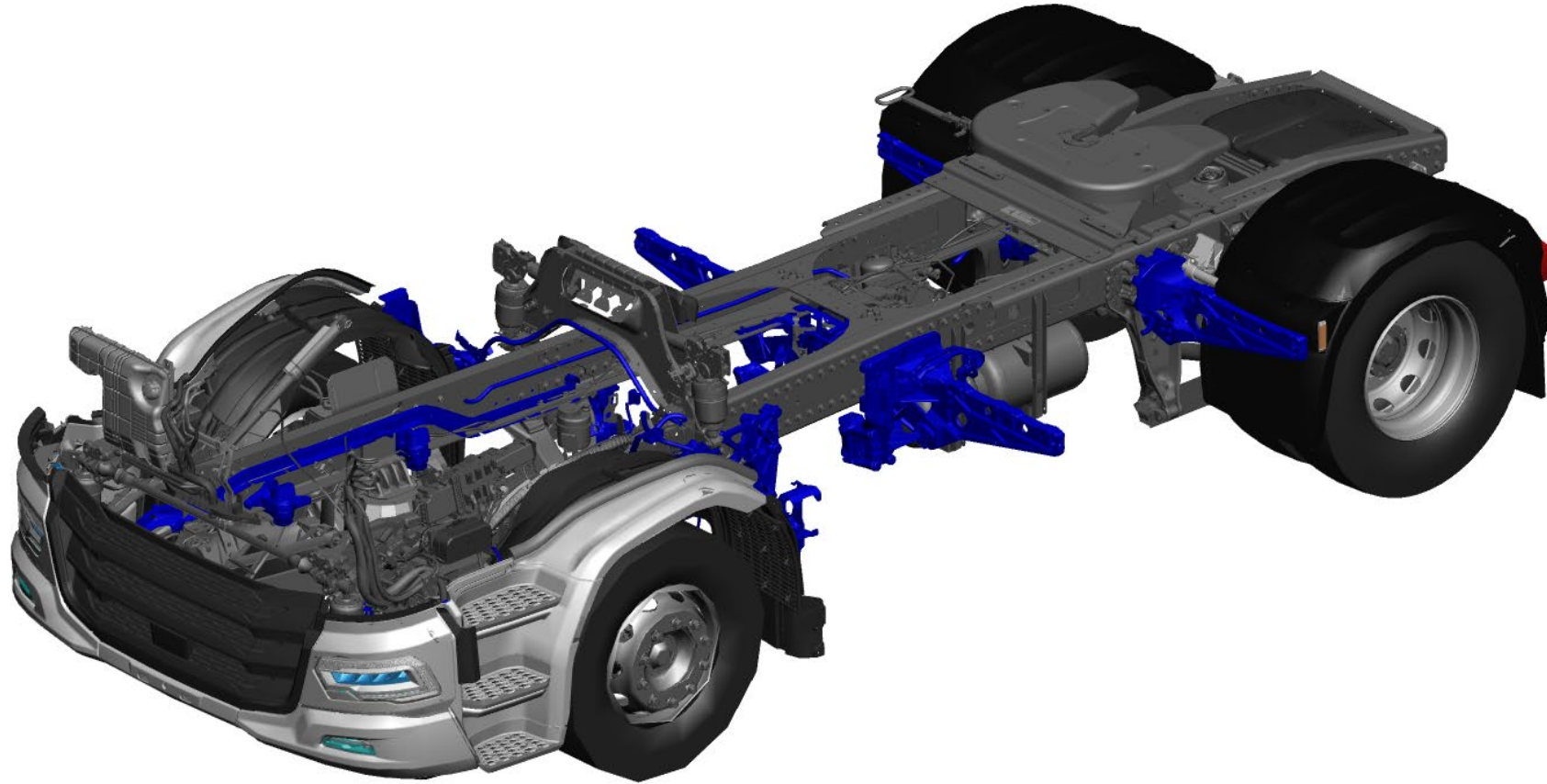
DRIVEABILITY & HMI

SERVICES

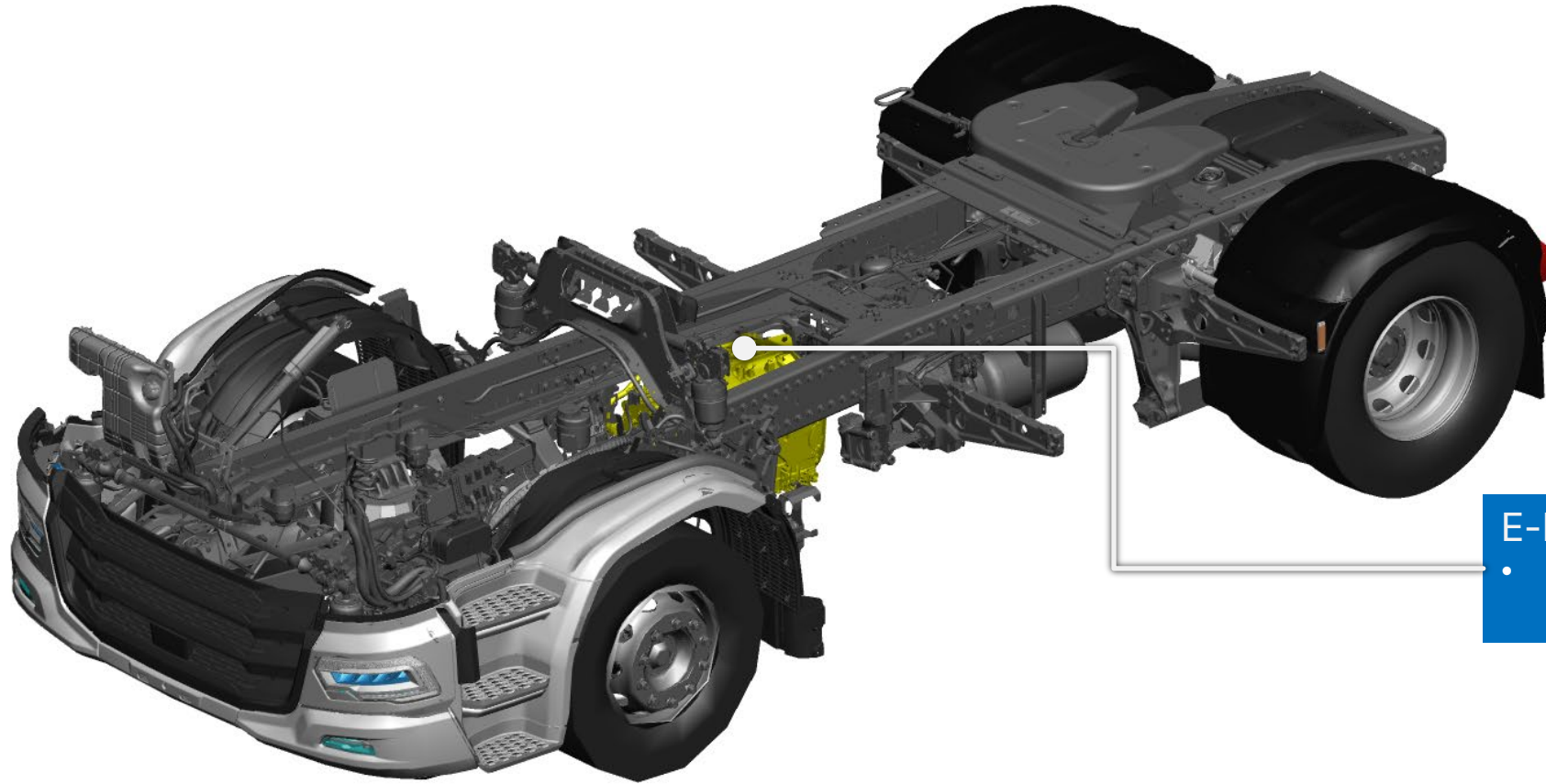
DAF ELECTRIC | CHASSIS LAY-OUT



DAF ELECTRIC | CHASSIS LAY-OUT



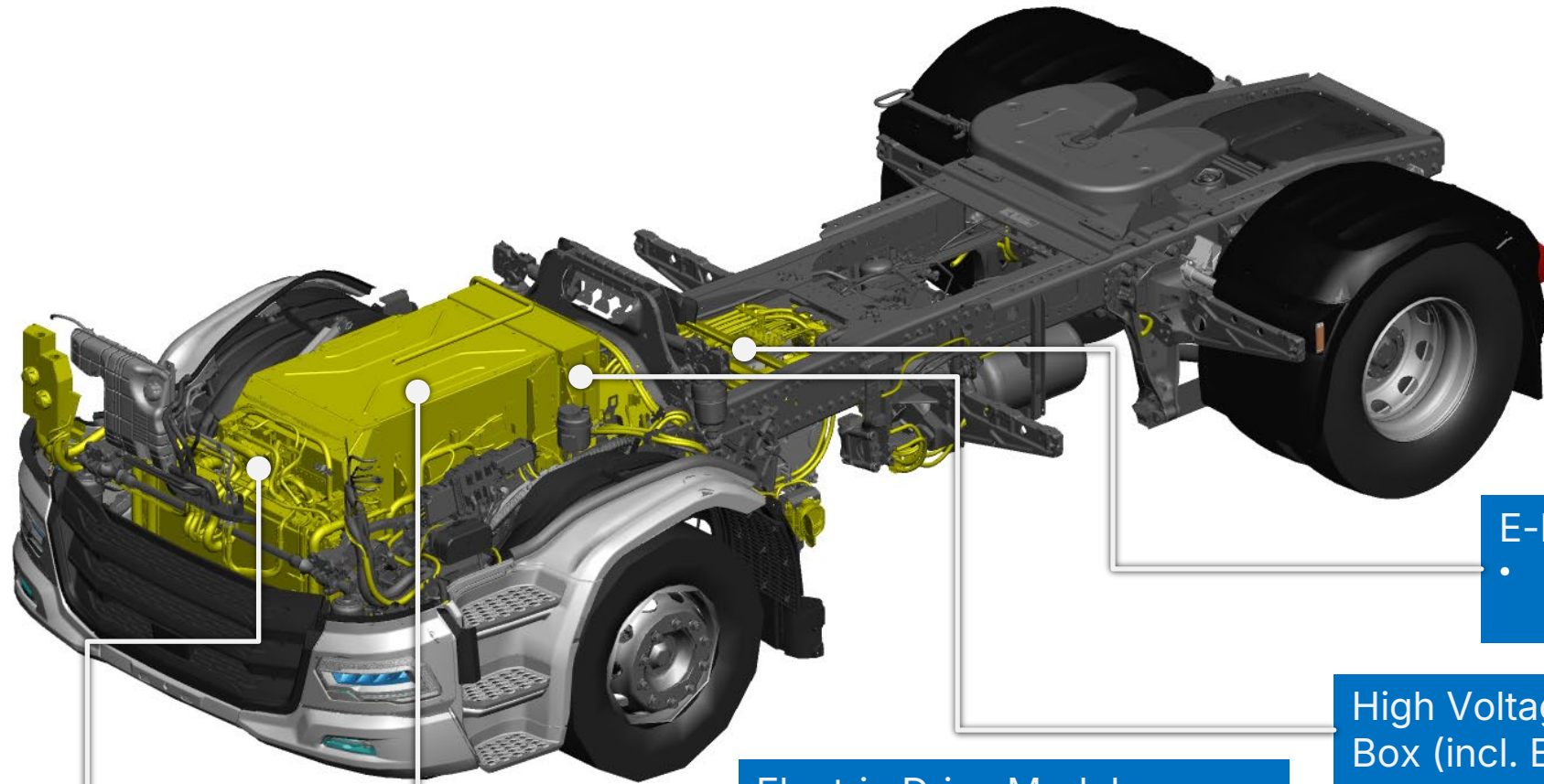
DAF ELECTRIC | CHASSIS LAY-OUT



E-Motor

- With integrated gear box

DAF ELECTRIC | CHASSIS LAY-OUT



New Cooling Module

Electric Drive Module

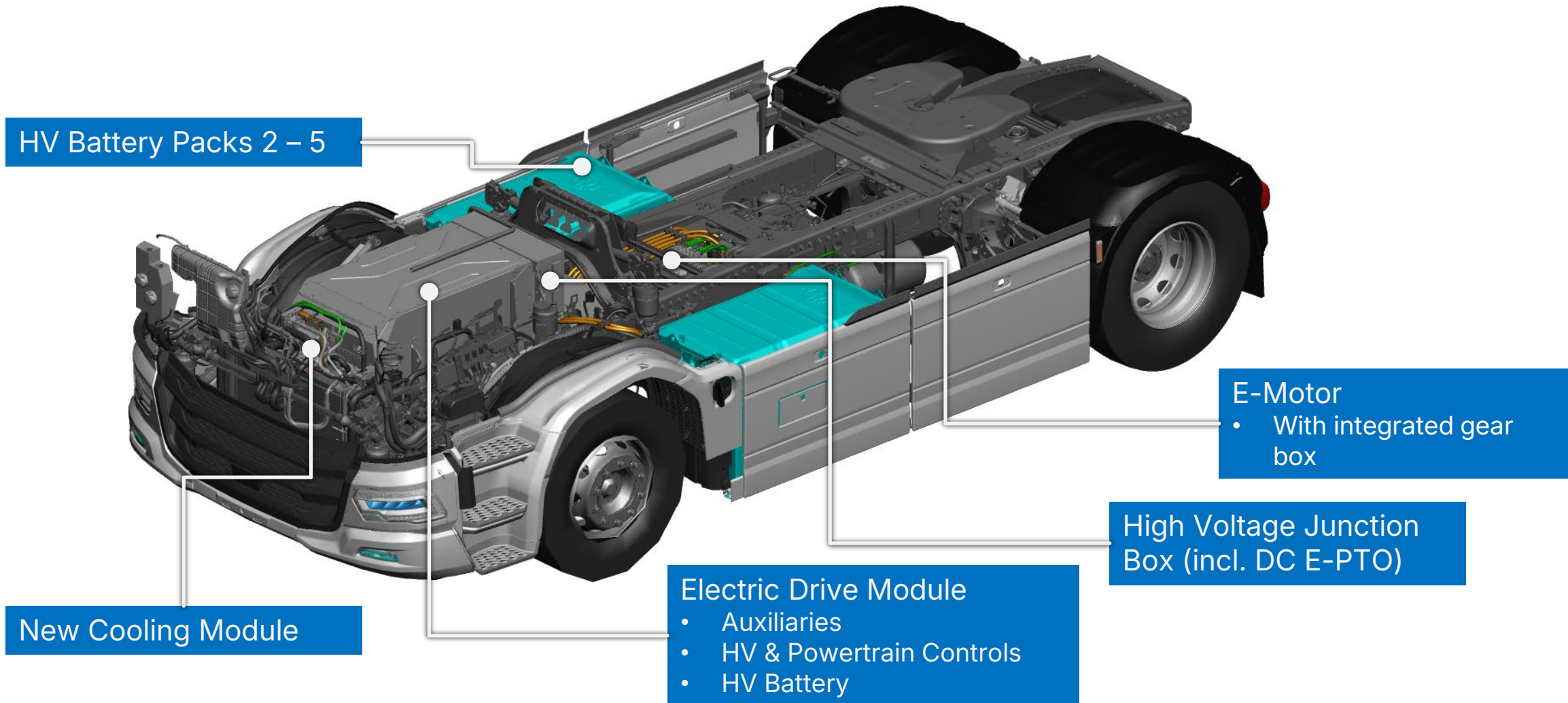
- Auxiliaries
- HV & Powertrain Controls
- HV Battery Pack

High Voltage Junction Box (incl. E-PTO)

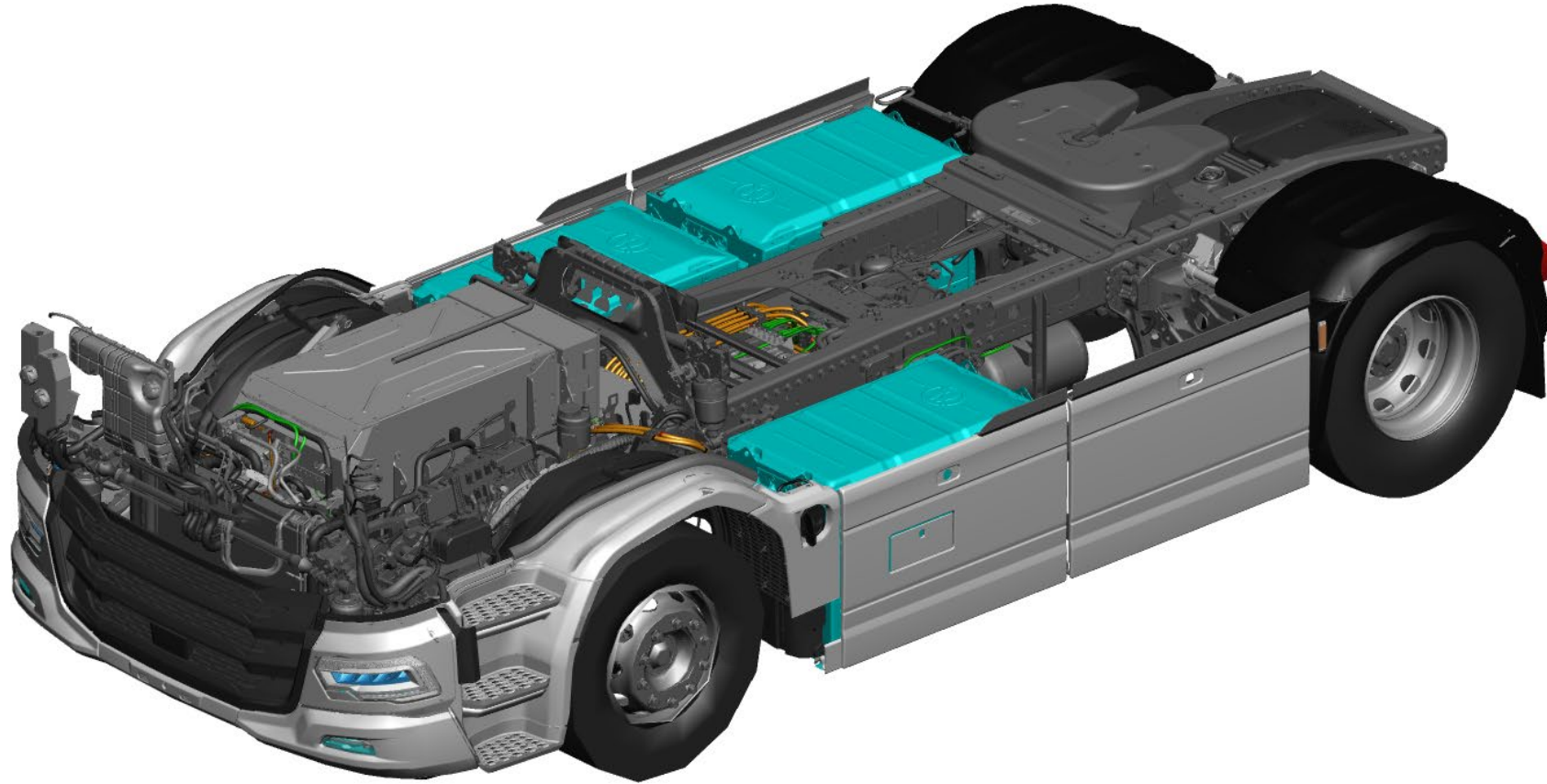
E-Motor

- With integrated gear box

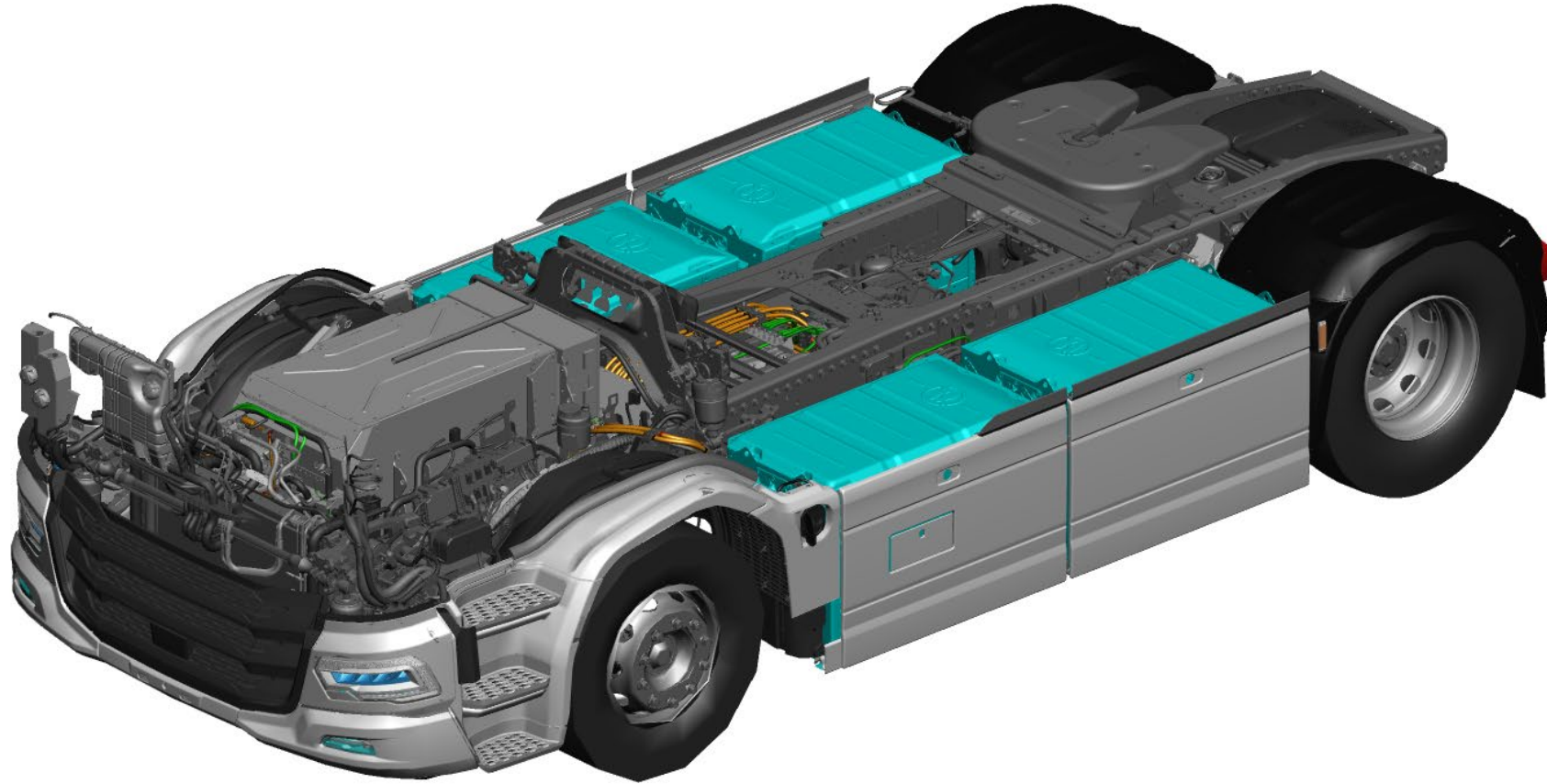
DAF ELECTRIC | CHASSIS LAY-OUT



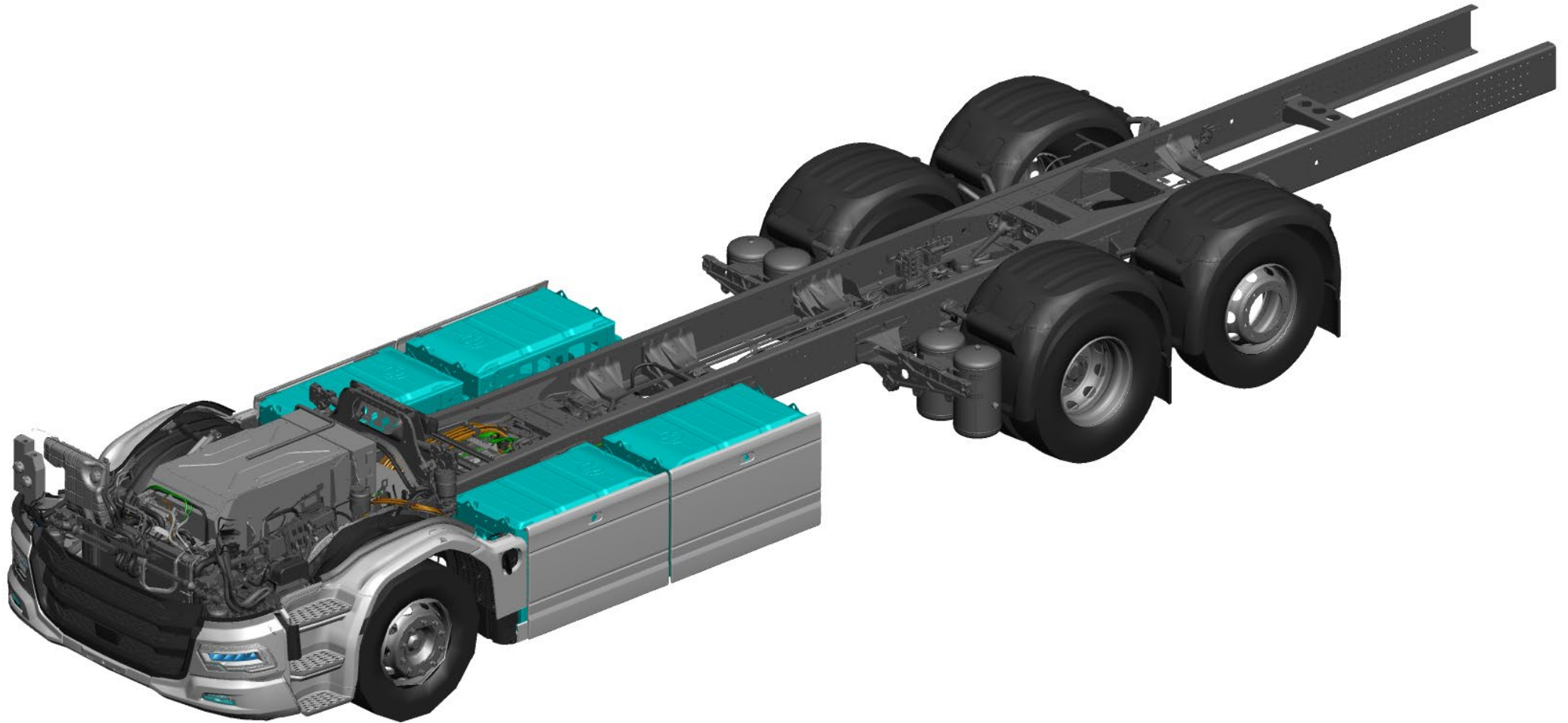
DAF ELECTRIC | CHASSIS LAY-OUT



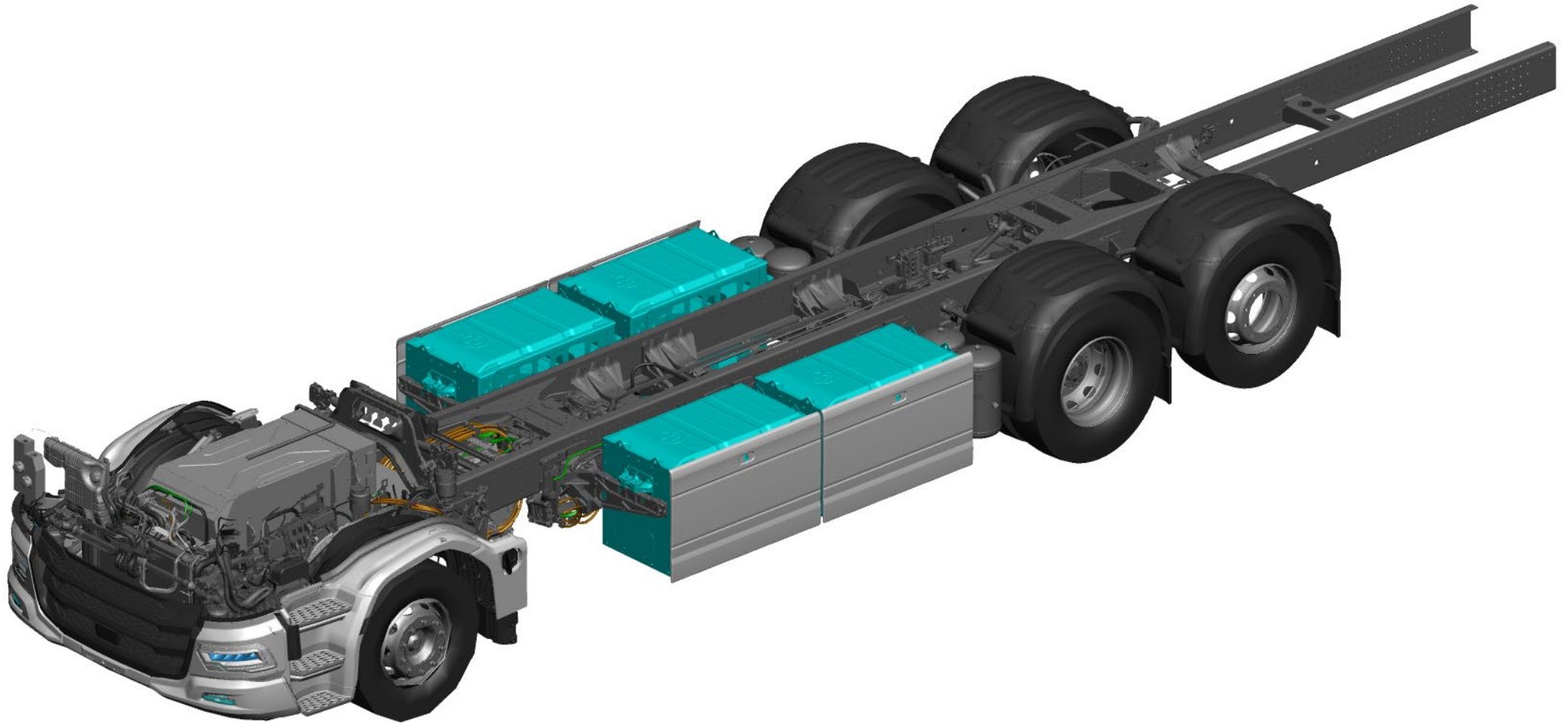
DAF ELECTRIC | CHASSIS LAY-OUT



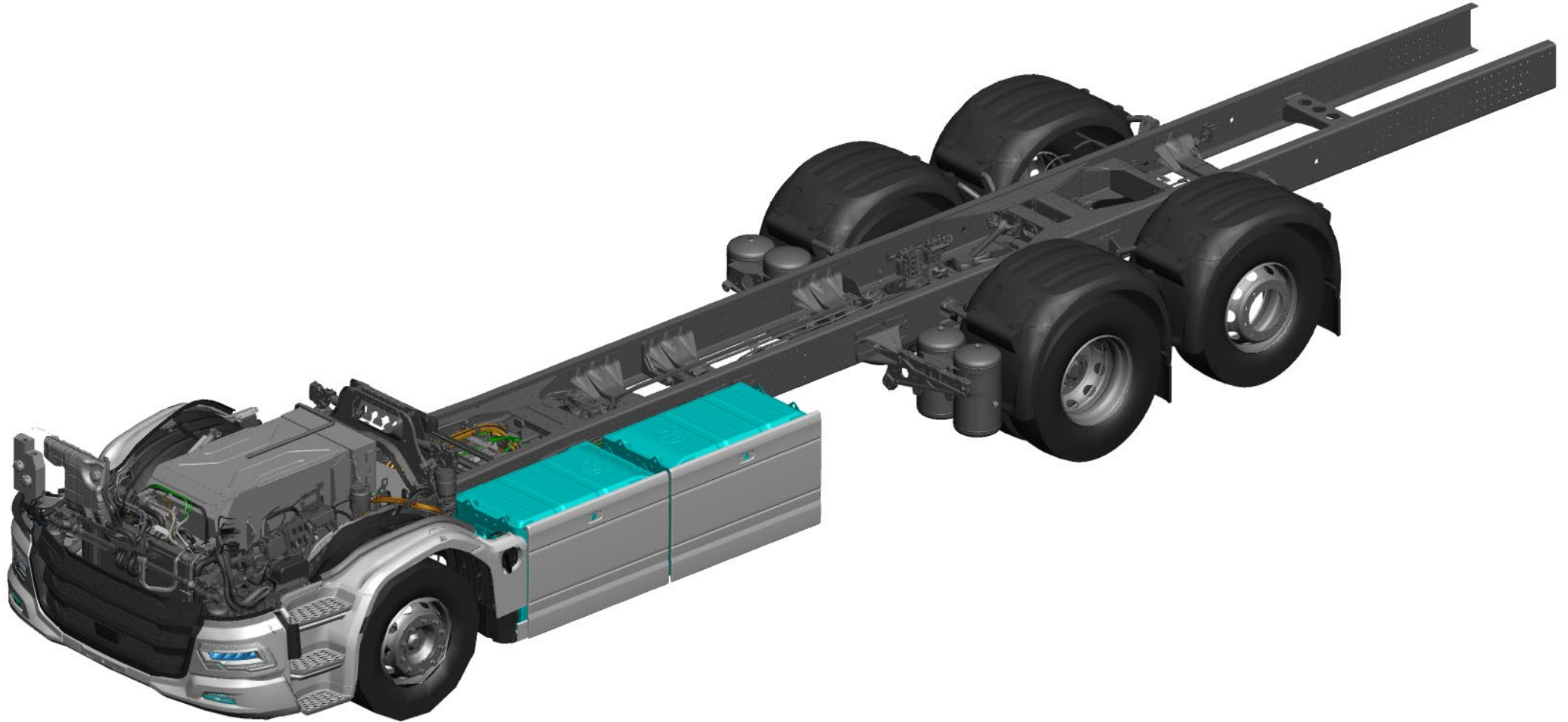
DAF ELECTRIC | CHASSIS LAY-OUT



DAF ELECTRIC | CHASSIS LAY-OUT



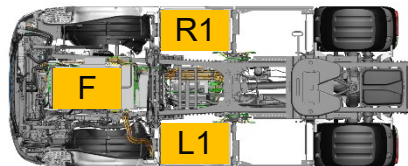
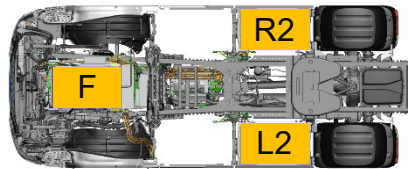
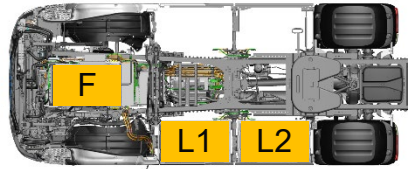
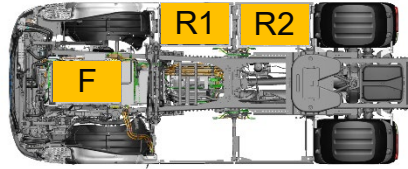
DAF ELECTRIC | CHASSIS LAY-OUT



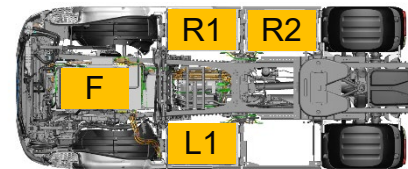
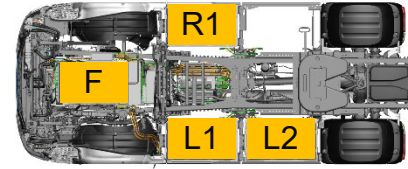
DAF ELECTRIC | HD CHASSIS LAY-OUT - TRACTORS



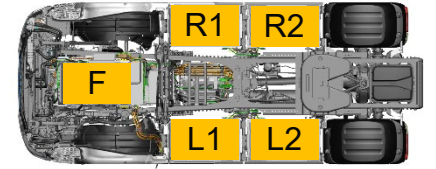
3 Battery Packs



4 Battery Packs

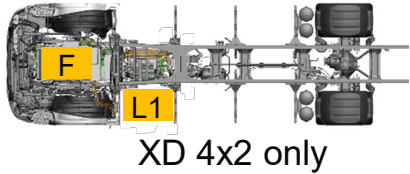


5 Battery Packs

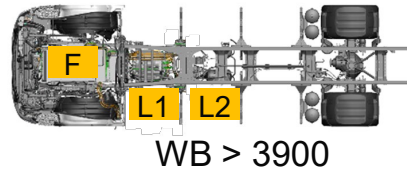
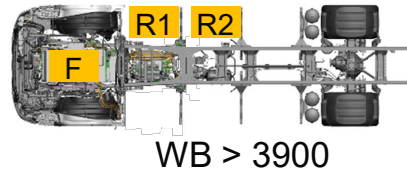
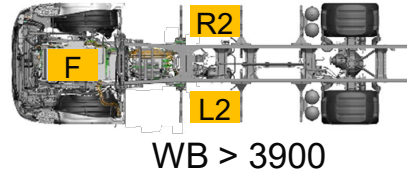
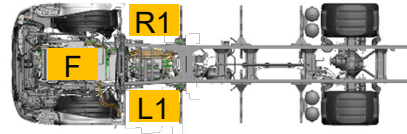


DAF ELECTRIC | HD CHASSIS LAY-OUT - RIGIDS

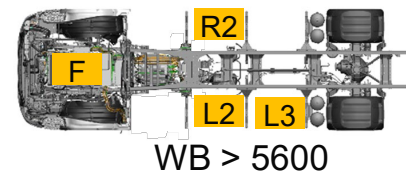
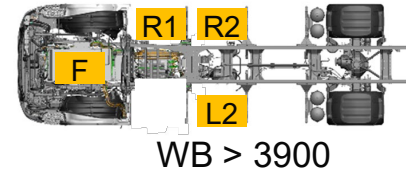
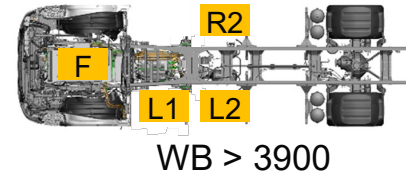
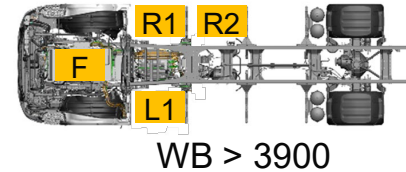
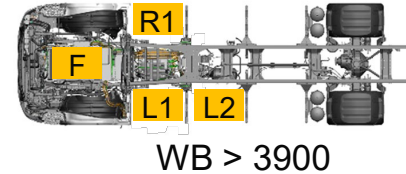
2 Battery Packs



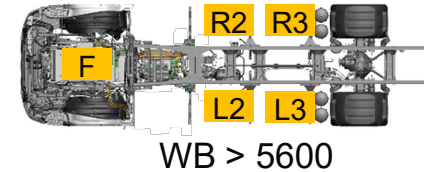
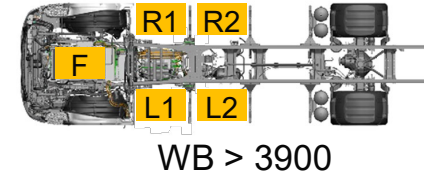
3 Battery Packs



4 Battery Packs

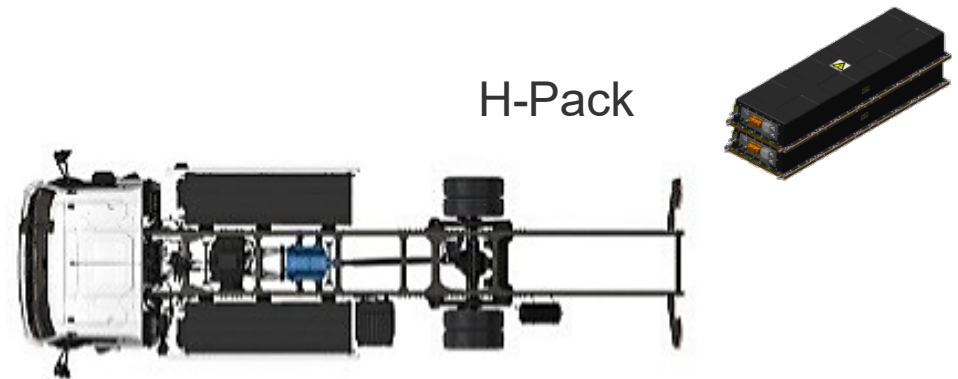
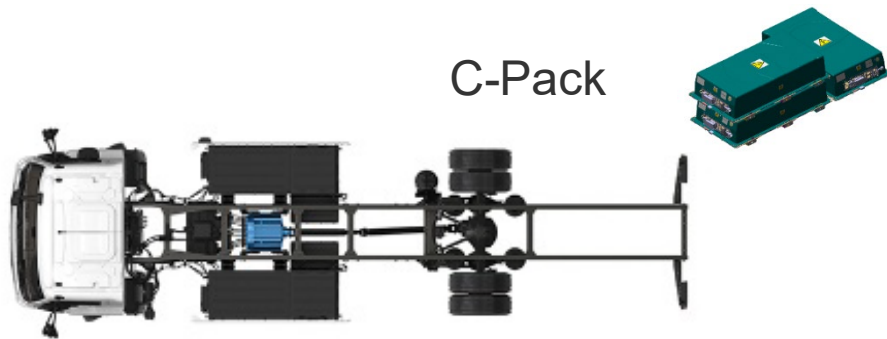


5 Battery Packs



DAF ELECTRIC | CHASSIS LAY-OUT - XB

1 Battery Pack 1 x H ; 141 kWh	2 Battery Packs 2 x C ; 210 kWh	2 Battery Packs 2 x H ; 282 kWh



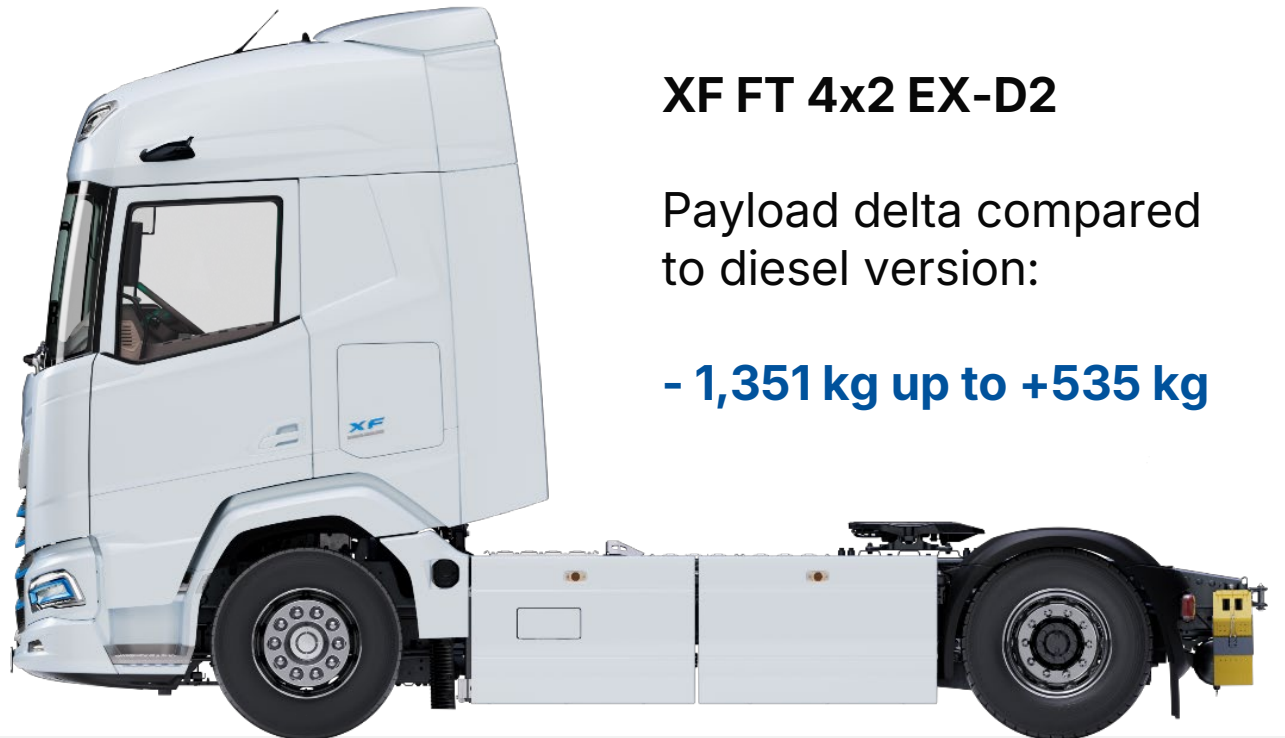
DAF ELECTRIC | WEIGHT BENEFITS



- Compact engine unit
- Light axle design
- High fifth wheel payload

DAF ELECTRIC | WEIGHT BENEFITS

- Updated EU legislation 96/53: weight allowed to be registered up to +2t GVW
- Extra weight can only be registered over additional e-powertrain weight up to 2t
- EU legislation on axle limits remain
- Country specific weight legislation remains
- Additional weight is on vehicle type plate



XF FT 4x2 EX-D2

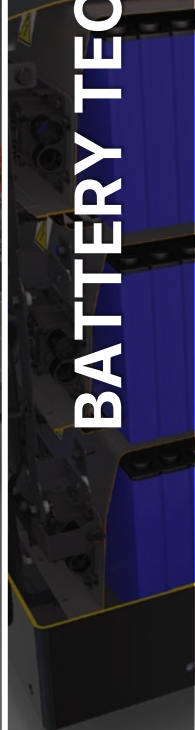
Payload delta compared to diesel version:

- 1,351 kg up to +535 kg

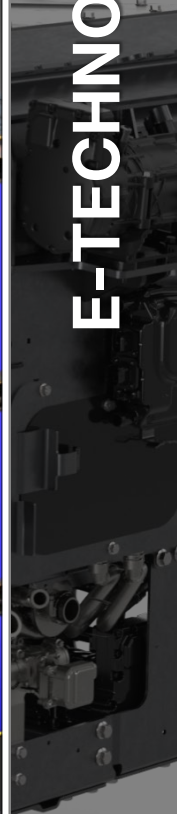
POWERTRAIN



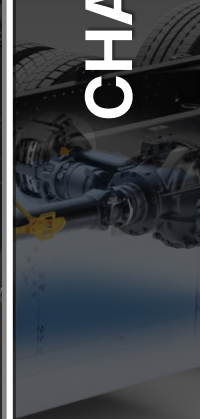
BATTERY TECHNOLOGY



E-TECHNOLOGY



CHASSIS LAYOUT



DRIVEABILITY & HMI



SERVICES



DAF ELECTRIC HANDS ON WHEEL, EYES ON ROAD



DAF ELECTRIC | HANDS ON WHEEL, EYES ON ROAD



Truck parked and charging

DAF ELECTRIC | HANDS ON WHEEL, EYES ON ROAD



Truck driving

DAF ELECTRIC | HANDS ON WHEEL, EYES ON ROAD



Truck braking

DAF ELECTRIC | HANDS ON WHEEL, EYES ON ROAD



Truck braking

DAF ELECTRIC | HANDS ON WHEEL, EYES ON ROAD



**Enhanced info and programming options available
at Start of Production**

POWERTRAIN

BATTERY TECHNOLOGY

E-TECHNOLOGY

CHASSIS LAYOUT

DRIVEABILITY & HMI

SERVICES



DAF ELECTRIC | TOTAL TRANSPORT SOLUTION



Electric Vehicles



Charging Solutions

Connected Services
Uptime Services
Financial Services
Fleet Services
Driver Training

Services

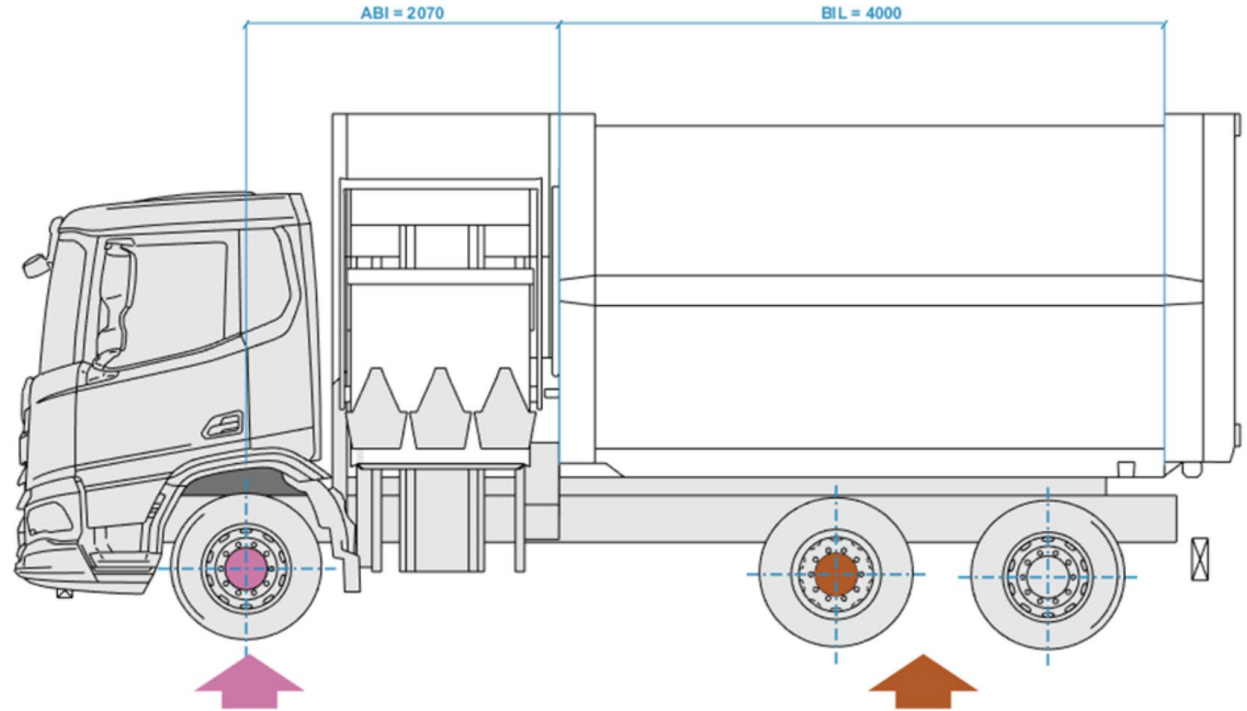
DAF ELECTRIC TRUCK CENTER

- All EU dealers certified
- Specialised sales people and mechanics
- Fully equipped for safe and professional workshop activities
- (Semi-)public charging station



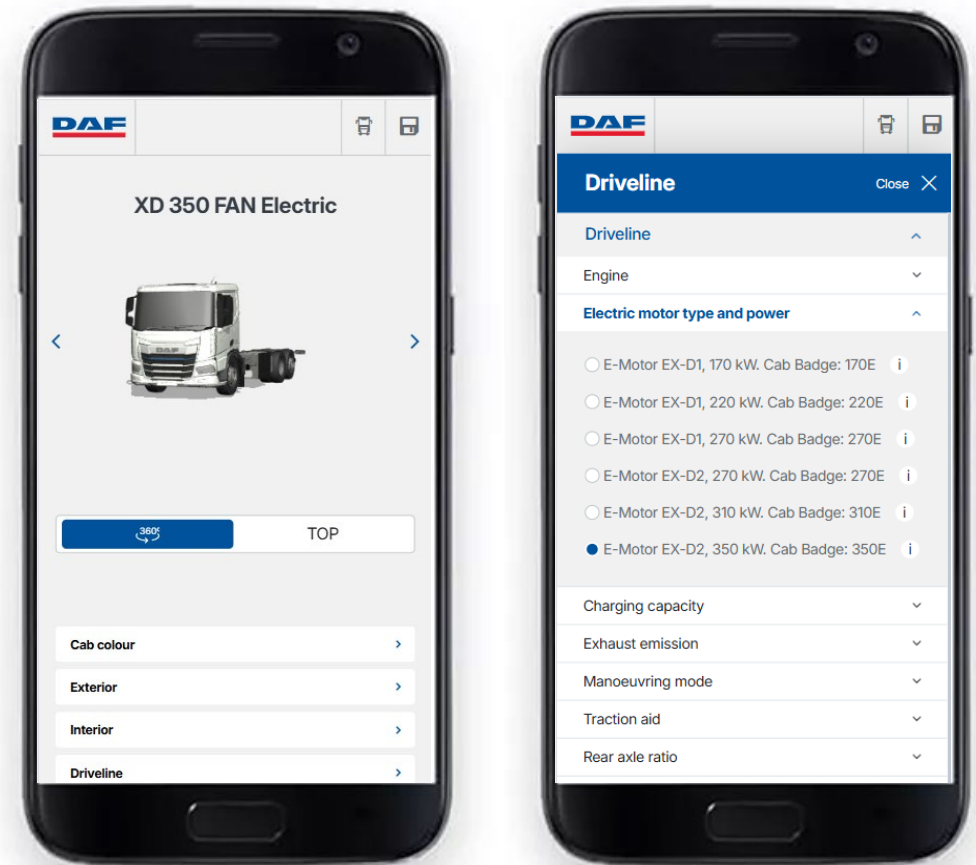
DAF ELECTRIC | TOPEC SALES SYSTEM

- Optimize vehicle specification
 - Vehicle load distribution
 - Payload versus batteries
 - Energy efficiency
- Detailed route simulation
 - Can I drive my daily route?
 - When and where do I need to charge with which charger?
 - Can the batteries last the daily operation?



DAF ELECTRIC | ONLINE TRUCK CONFIGURATOR

- Real-time visualization:
Viewing the truck in 3D and from every angle
- Unique configuration ID:
Generate a unique vehicle code; revisit the design and spec anytime
- Full control and access to all options:
Choosing from a huge range of options and configuring the truck completely
- Fast and efficient:
Sharing the configuration ID directly with the bodybuilder or DAF dealer



www.daf.com/truck-configurator

DAF ELECTRIC | PACCAR POWER SOLUTIONS



PacCharge AC
7 / 11 / 20 (22kW)



PacMobile 40X
(40kW)



ChargeMax
(120kW - 400kW)



PowerChoice
(180kW – 400kW)



PACCAR POWER SOLUTIONS

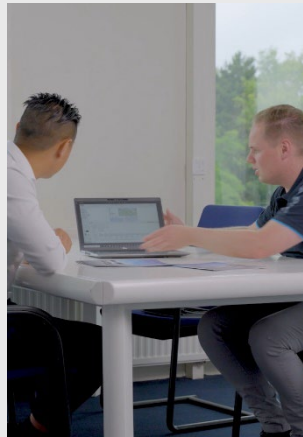
DAF ELECTRIC | PACCAR POWER SOLUTIONS

Completing the package with
energy solutions



Battery Energy Storage System
Energy Management System

Services



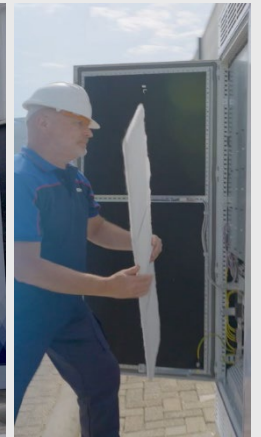
Consultancy



Project
management



Installation



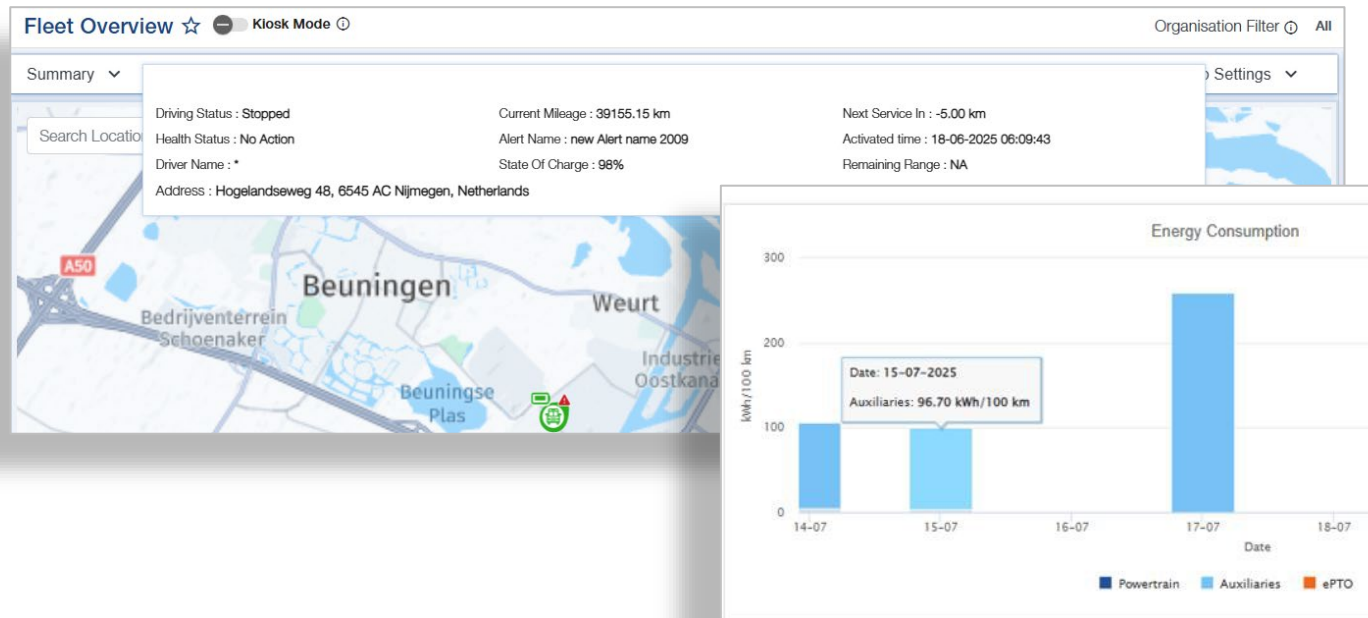
Service &
Maintenance

PACCAR **POWER** 
SOLUTIONS

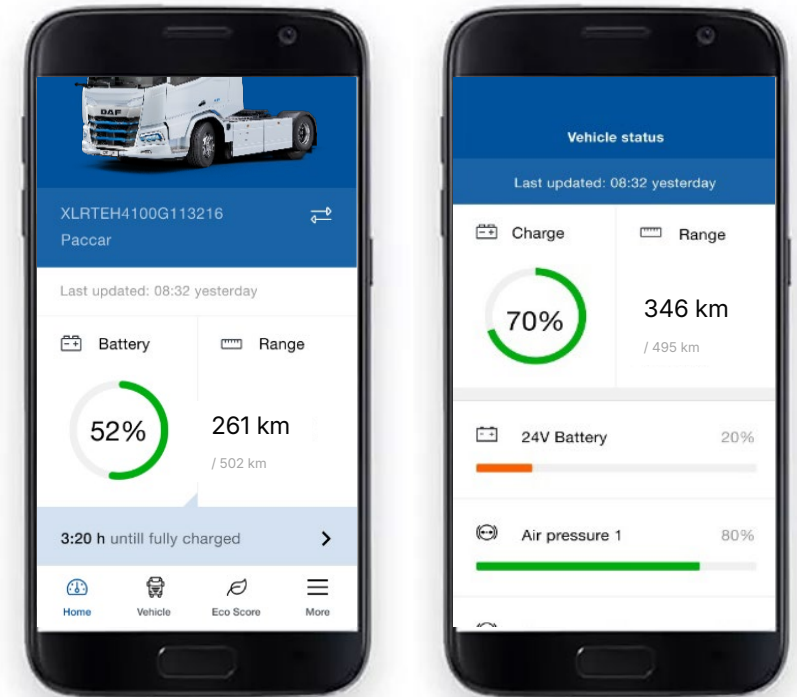
DAF ELECTRIC | PACCAR CONNECT

PACCAR Connect Portal

- Charging status, state of charge
- Indication of BEV vehicle status
- Pro-active maintenance indication



PACCAR Connect Driver App



DAF ELECTRIC | PACCAR CONNECT

DAF Truck Navigation

- Battery Electric Vehicles truck settings
- My Point of Interest (POI) to be used to add custom charger locations
- My itinerary for route planning via back-office





















DAF ELECTRIC | DRIVER TRAINING

- Detailed instructions at vehicle handover
- Vouchers for dedicated driver trainings
- Getting the maximum mileages out of every kW of electricity through:
 - Smart charging
 - Regenerative braking



DAF ELECTRIC | PROGRAM OVERVIEW

Series		Type		PACCAR E-Motor		Battery capacity (kWh)								
				Engine	kW	141	210	282	315	420	525			
Axle configurations				GVW	GCW									
		 	≤20,5t	Up to 40+2t 44+2t 50t	EX-D2	<i>350</i>					●	●	AC 22 DC 150 DC 325	
			≤29t			<i>310</i>					●	●		●
						<i>270</i>				●	●	●		
		  	≤20,5t	Up to 40+2t 44+2t 50t	EX-D2	<i>350</i>					●	●	AC22 DC 150 DC 325	
			≤21,5t			<i>310</i>					●	●		
			≤29t			<i>270</i>				●	●	●		
		  	≤21,5t		EX-D1	<i>270</i>				●	●	●	AC 22 DC 150 DC 325	
			≤29t			<i>220</i>				●	●	●		
			≤29t			<i>170</i>		● FA only		●	●	●		
			≤19 t		EX-M2	<i>190</i>		●	●				AC 22 DC 150	
			≤16 t		EX-M2	<i>190</i>		●	●					
			≤12 t		EX-M1	<i>120</i>	●	●	●					

TESTING



Functional Testing

Durability Testing

HIL Testing

XB ELECTRIC



PACCAR EX-M1 / M2



120kW or 190kW



Available HV batteries:
141, 210 or 282kWh

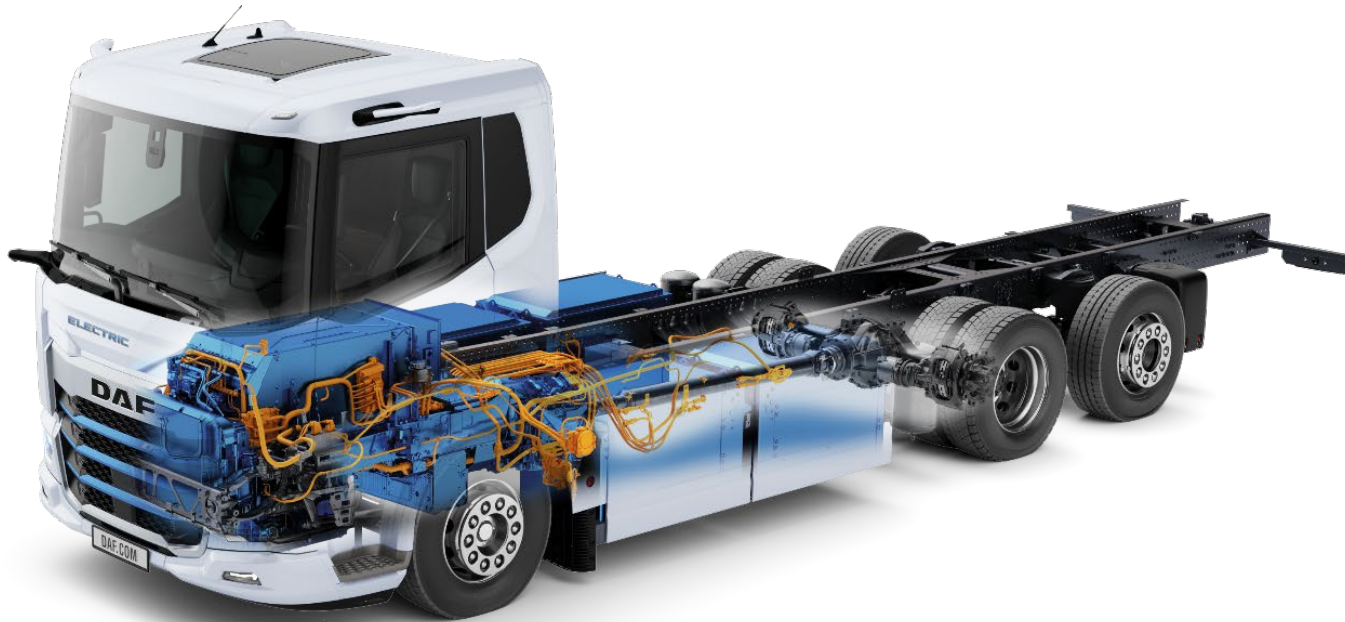


AC 22kW, 20>80% in 6.5 hrs
DC 150kW, 20>80% in 60 min



Up to 350km

XD ELECTRIC



PACCAR EX-D1 / D2



EX-D1: 170kW - 210kW - 270kW
EX-D2: 270kW - 310kW - 350kW



Available HV batteries:
From 2 up to 5 battery packs
From 210 to 525kWh



AC 22kW (optional)
DC 150kW (standard)
DC 325kW (optional)



240 - >500km

XF ELECTRIC



PACCAR EX-D2



270kW - 310kW - 350kW



Available HV batteries:
From 3 up to 5 battery packs
From 315 to 525kWh



AC 22kW (optional)
DC 150kW (standard)
DC 325kW (optional)



240 - >500km

DAF – YOUR ENERGY TRANSITION PARTNER

