



# Pilot kick-off event

Istanbul, April 2026

# FORD OTOSAN

## NextEtruck: Enabling the Next Generation of Electric Commercial Vehicle Platforms

Mustafa Bařaran(Ford Otosan)

[mbasara3@ford.com.tr](mailto:mbasara3@ford.com.tr)



Co-funded by  
the European Union



Co-funded by  
UK Government

*This project has received funding from the European Union's Horizon Europe programme under grant agreement No 101056740*

Next  
ETRUCK



# Shaping The Future of Electric Mobility



Funded by  
the European Union

NextETRUCK has received funding from the European Union Horizon Innovation Actions programme under grant agreement No101056740. The UK participants in this project are co-funded by the UK

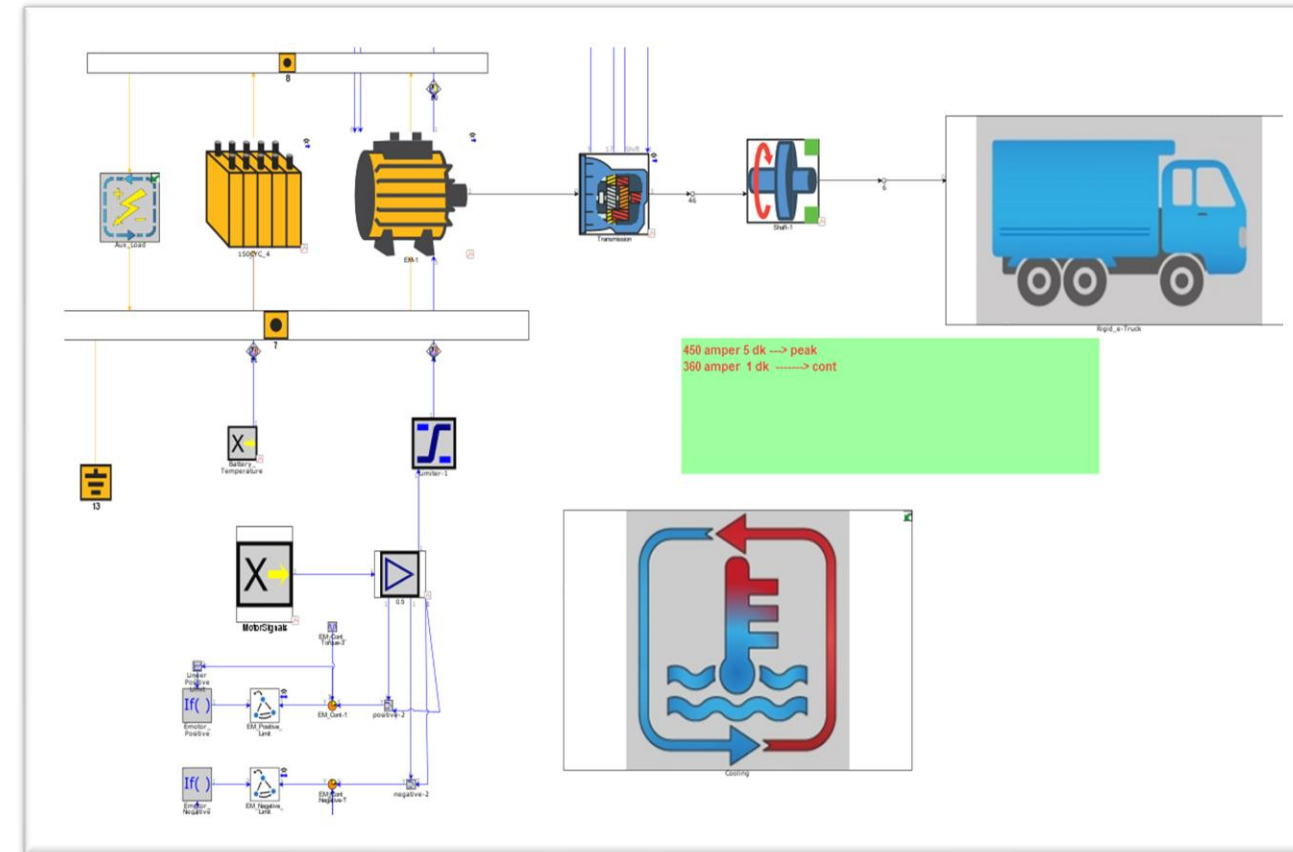


# INNOVATIONS AND LEARNING AREAS



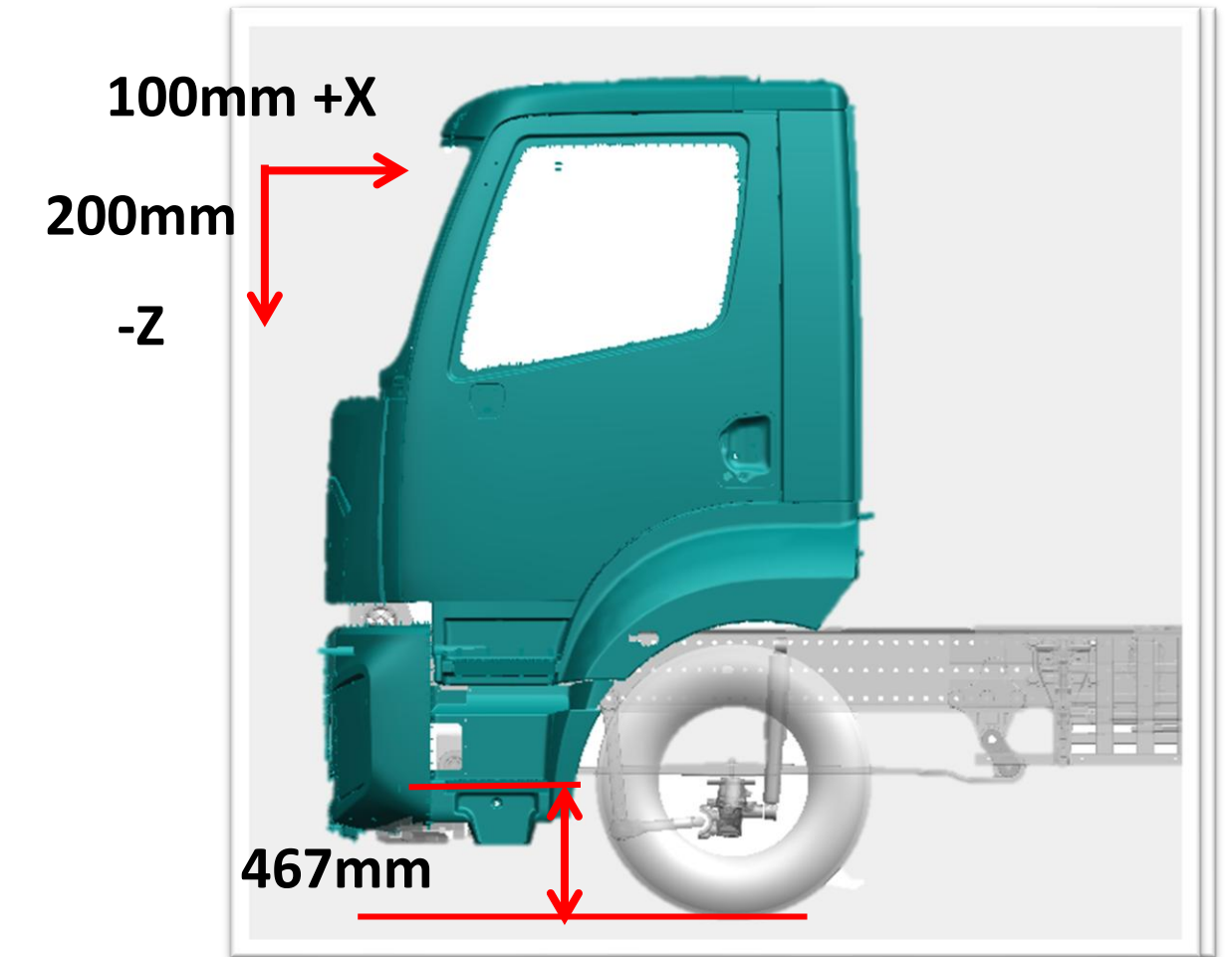
## Increased payload

- **10t** payload with the 16t NextETRUCK
- It will be best among EVs
  - Avg. ICE 16t = 10.5t
  - Avg. EV 16t = 8,7t



## Energy management improvement

- 10%PT efficiency achieved
- Up to %20 TMS improvement for winter
- Up to %8 TMS improvement for summer
- Up to %40 TMS improvement for spring

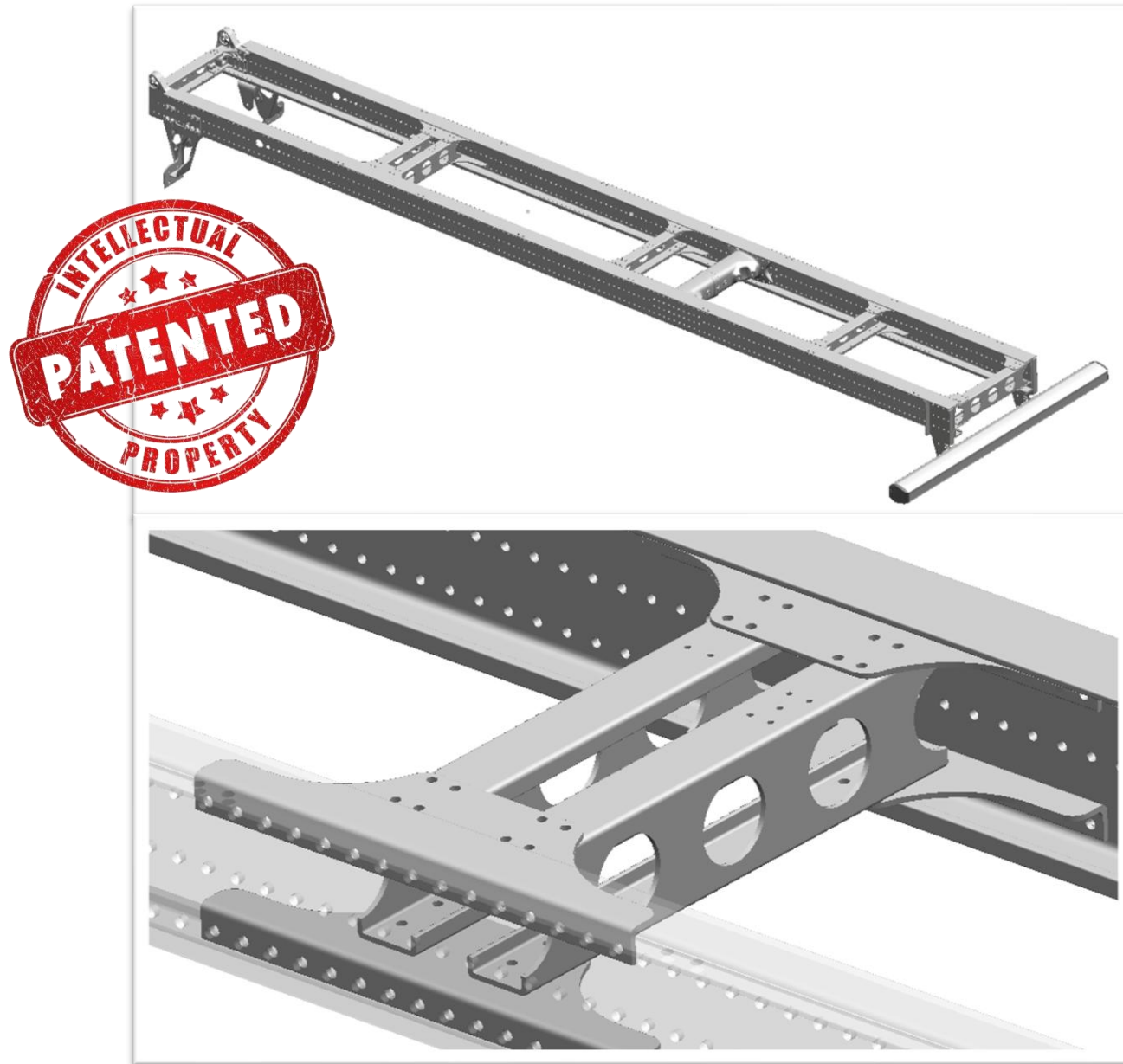


## Lower Cabin Location

- Better driver vision
- Easier to get on the truck
- 467mm first step height

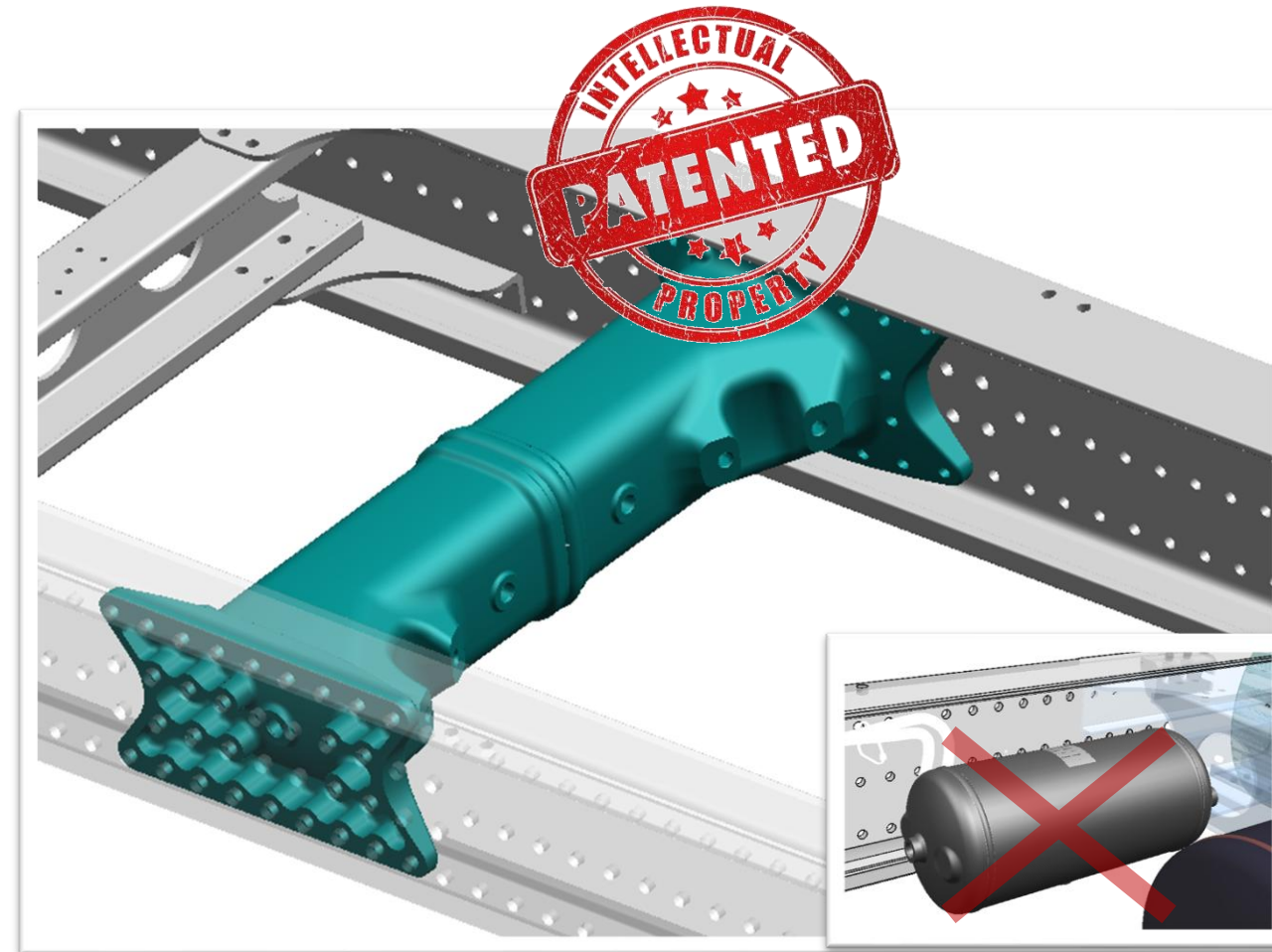


# INNOVATIONS AND LEARNING AREAS



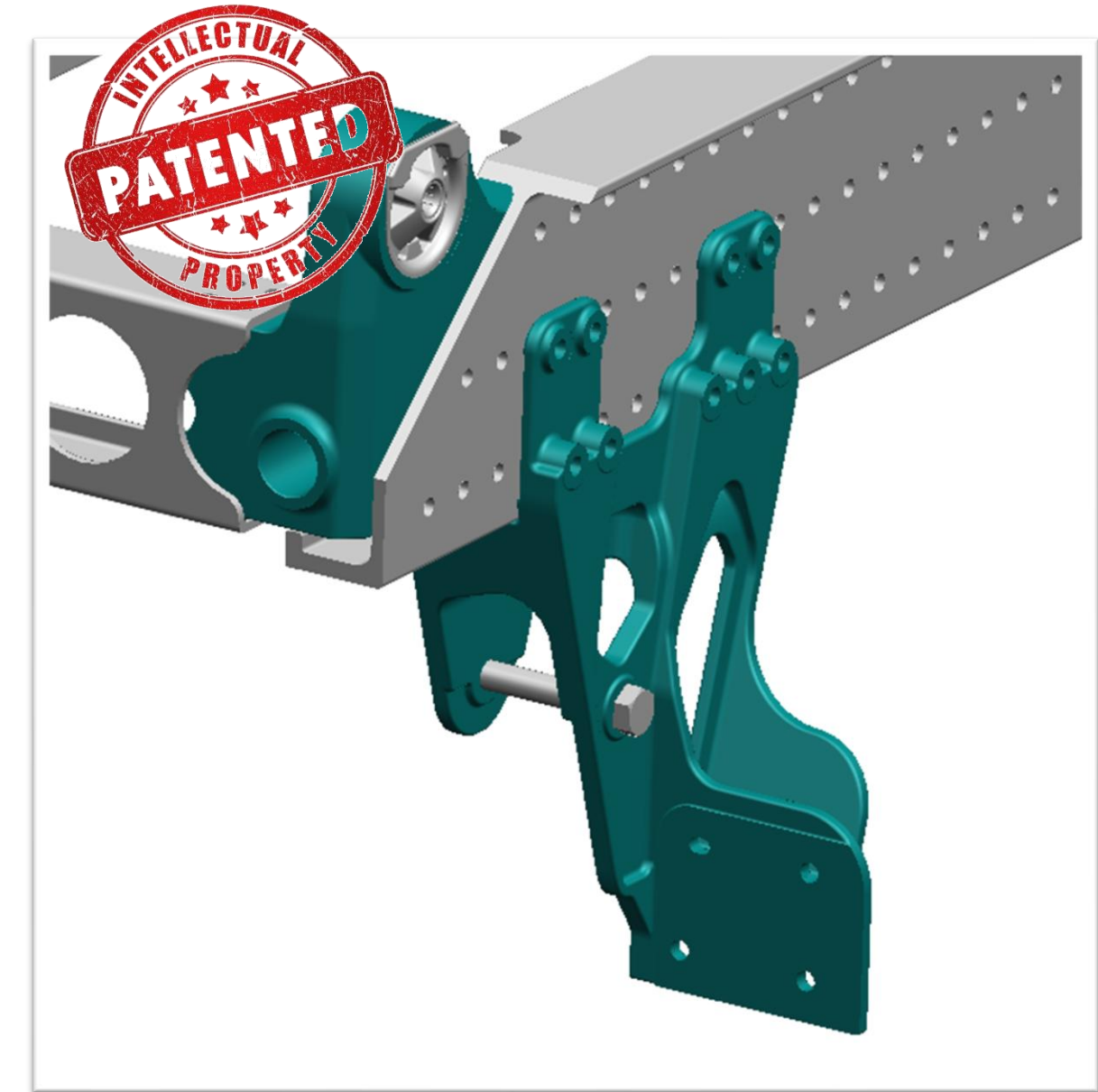
**Aluminum Ladder Frame**

- New material and manufacturing method
- Modular design with ordered hole pattern



**Air Tube Cross Member**

- 20 litre air volume
- Novel for Ford Trucks
- Package gain + Torsional stiffness increase

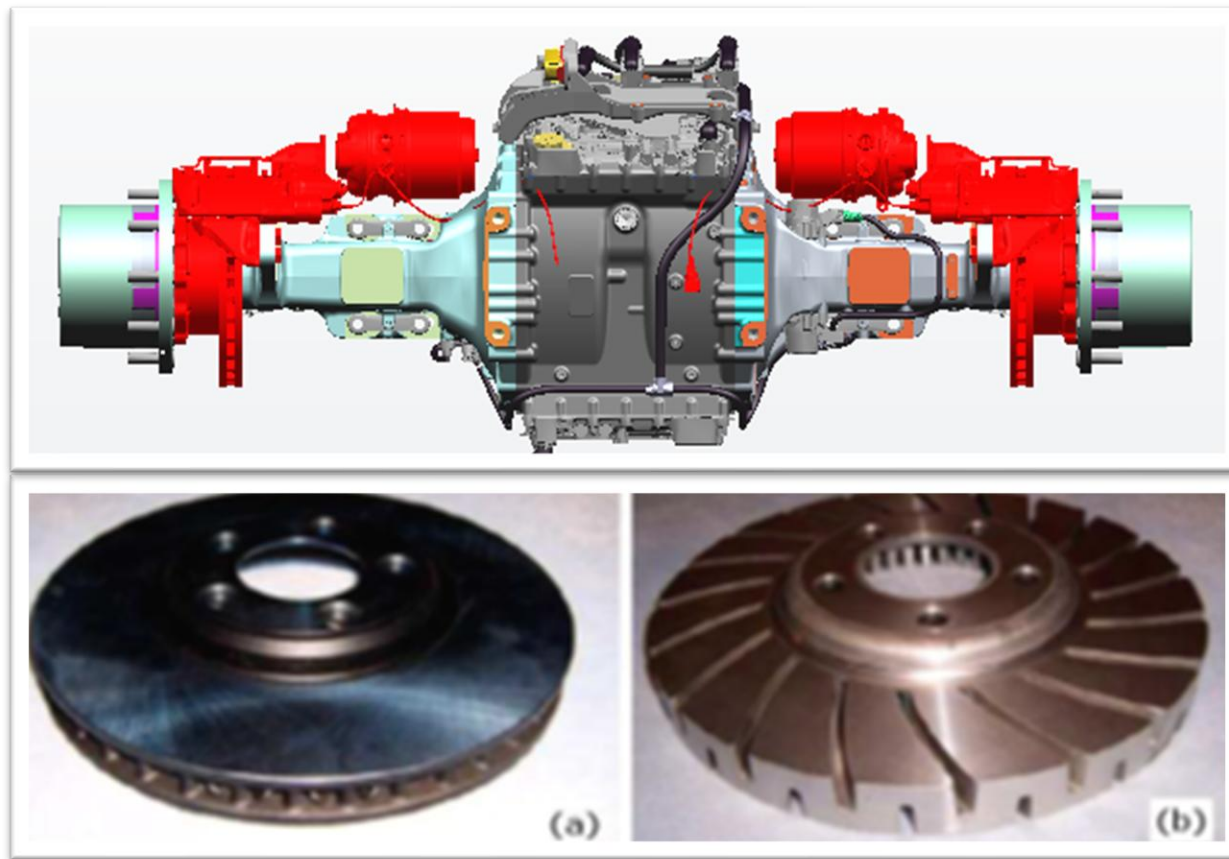


**Rapid Prototyping and Casting of Big Aluminium Parts**

- Additive Casting will be used to obtain limited in number of parts



# INNOVATIONS AND LEARNING AREAS

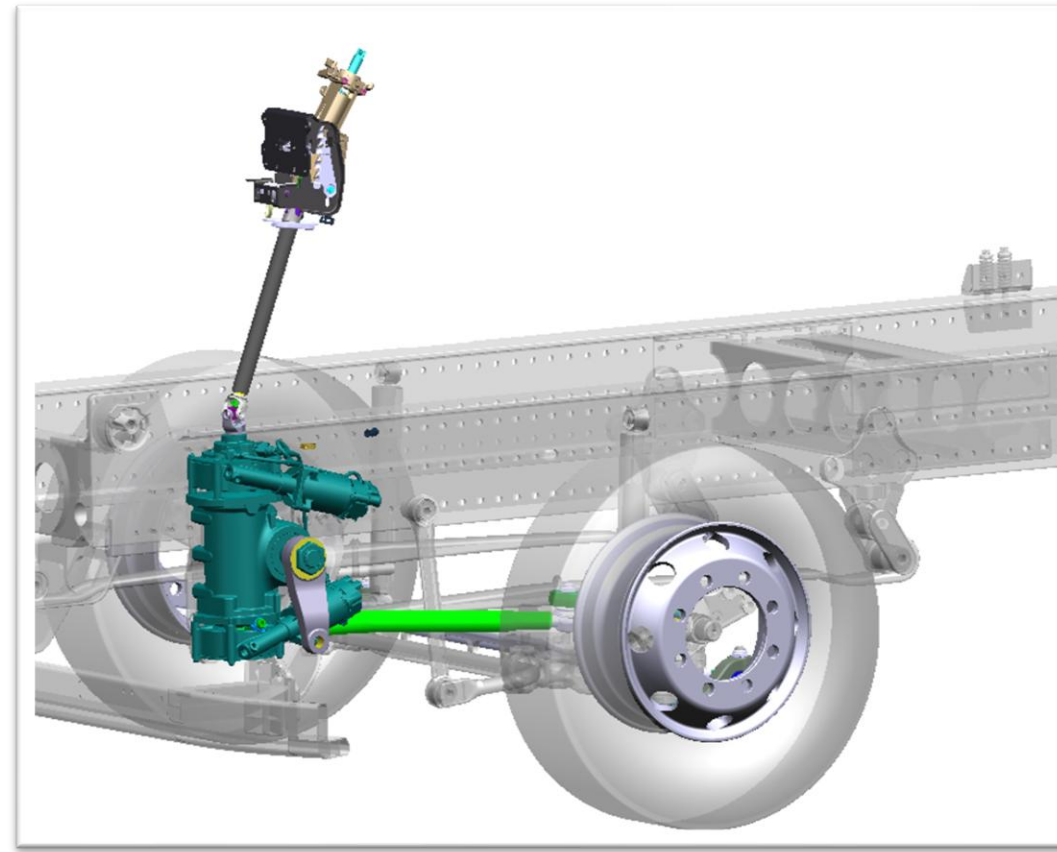


grey iron disc (a)

aluminum disc (b)

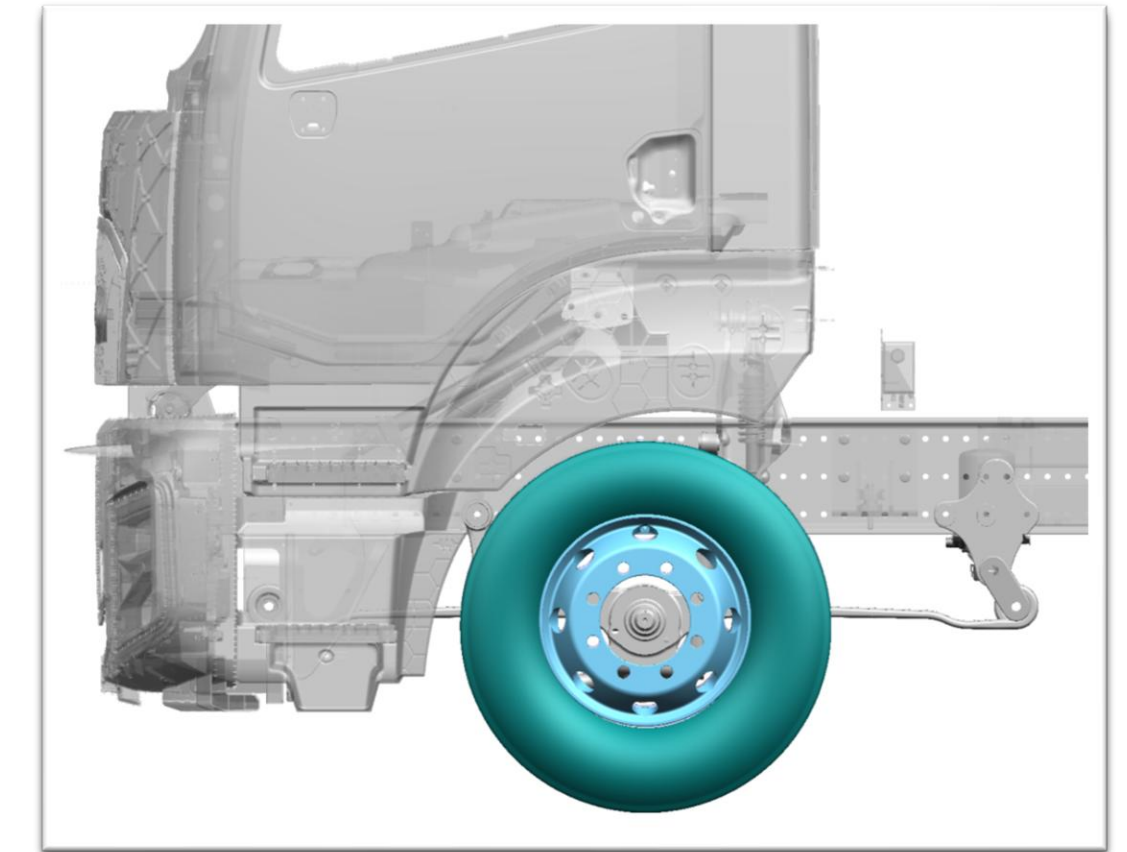
## Brake Studies

- 19.5" Brake Disc, Caliper, Brake Chamber
- ✓ Rear: (ZF Ax321 + Brake Foundation)
- ✓ Front: (Brist + Brake foundation)
- AMC or CMC Brake Disc



## EPS

- New technology
- No hydraulic support needed
- Supports fully autonomous drive.
- High efficiency



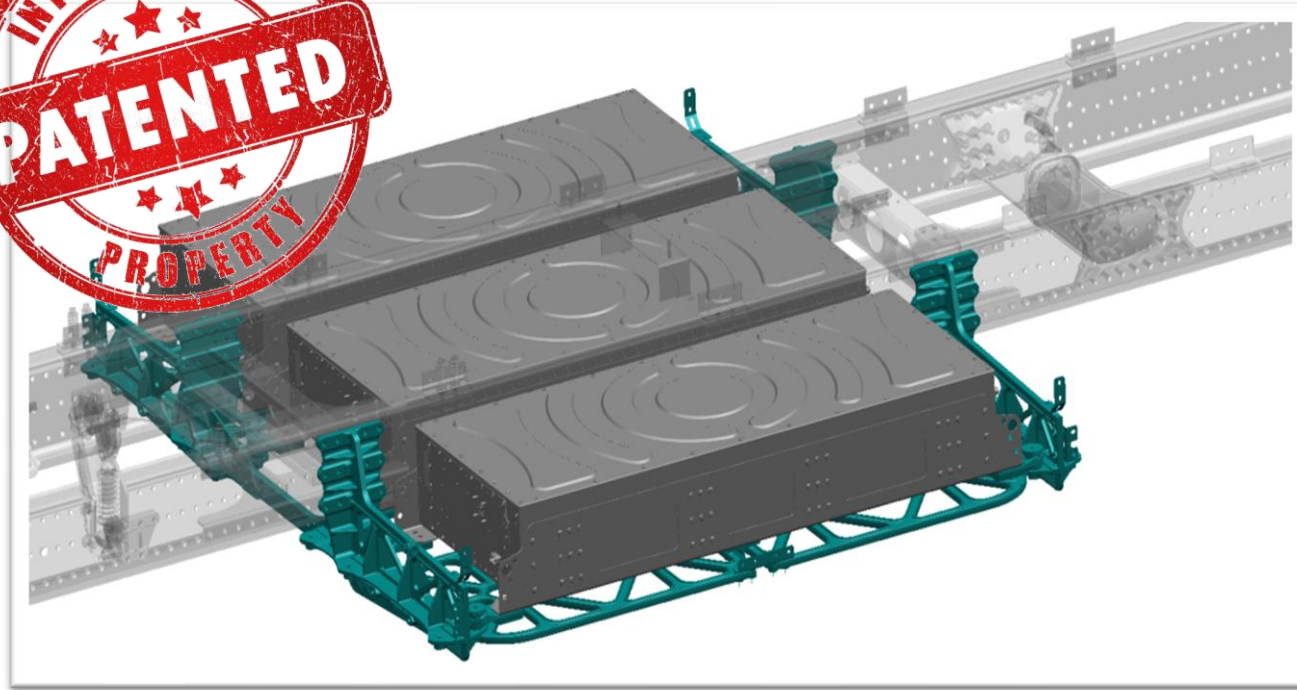
## 19,5 inch wheels and tyre

- Aluminum rim
- Lighter system
- Lower SLR

New and small systems for vehicle lightweighting

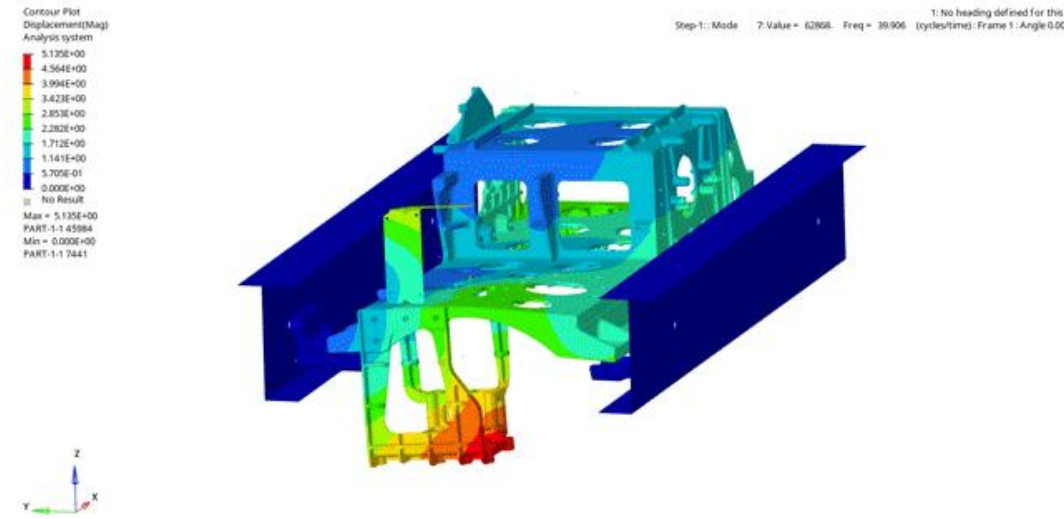


# INNOVATIONS AND LEARNING AREAS



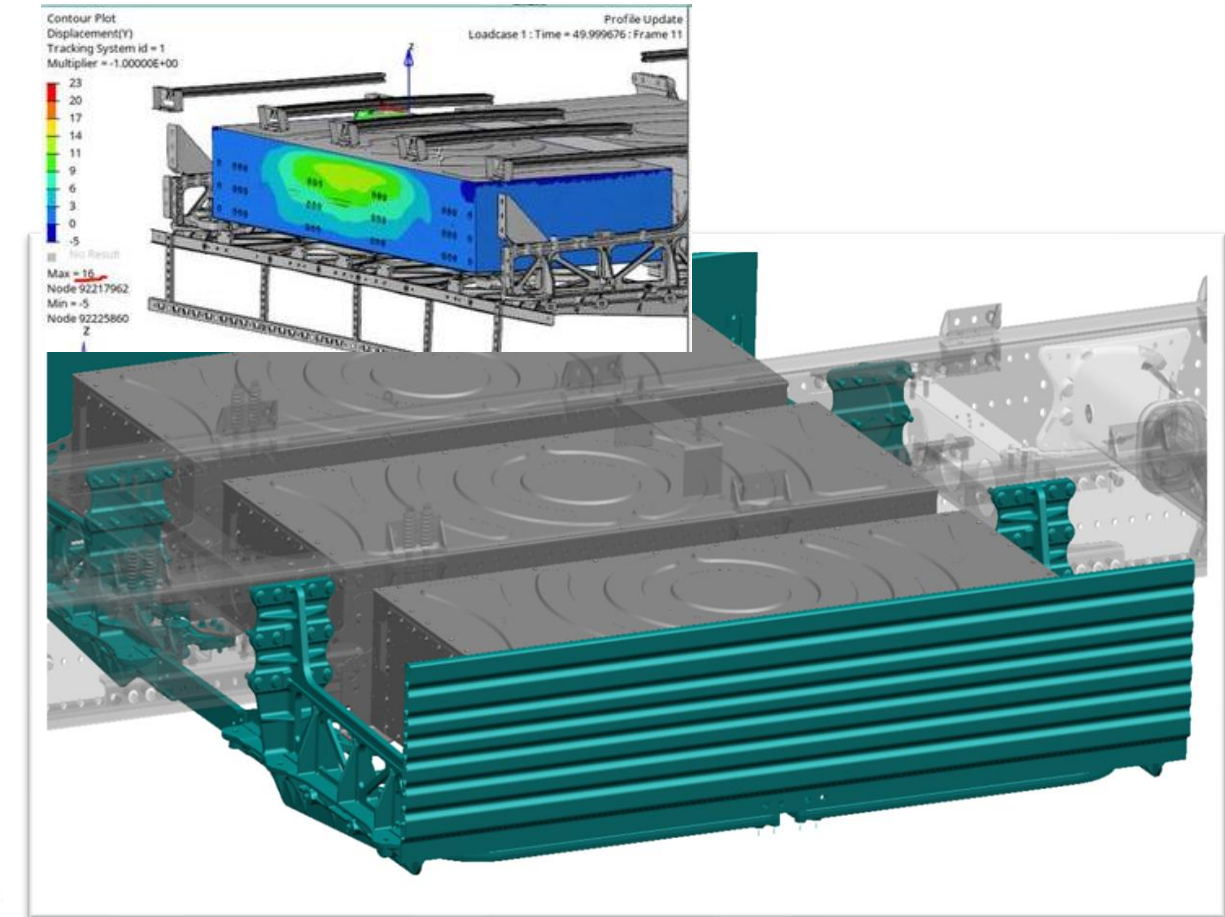
## New Battery Location

- 3rd battery is mounted between siderails, and all batteries are mounted onto common hanger bracket pairs.
- There is 250kg more weight reduction opportunity.



## Undercabin Mega Casting

- %40 weight reduction & 33 parts are reduced to a single megacasting structure.
- Mega Casting will be produced using the aid of the additive manufacturing technology.



## Lateral Protection

- 50% weight reduction is achieved with this design
- 65 welded parts are reduced to a single aluminum profile extrusion

New and small systems designed for lightweight application



# CABIN ARCHITECTURE

VA support is provided internally by the LCV Trim & Body Design Tea

## Relocated Cabin Position

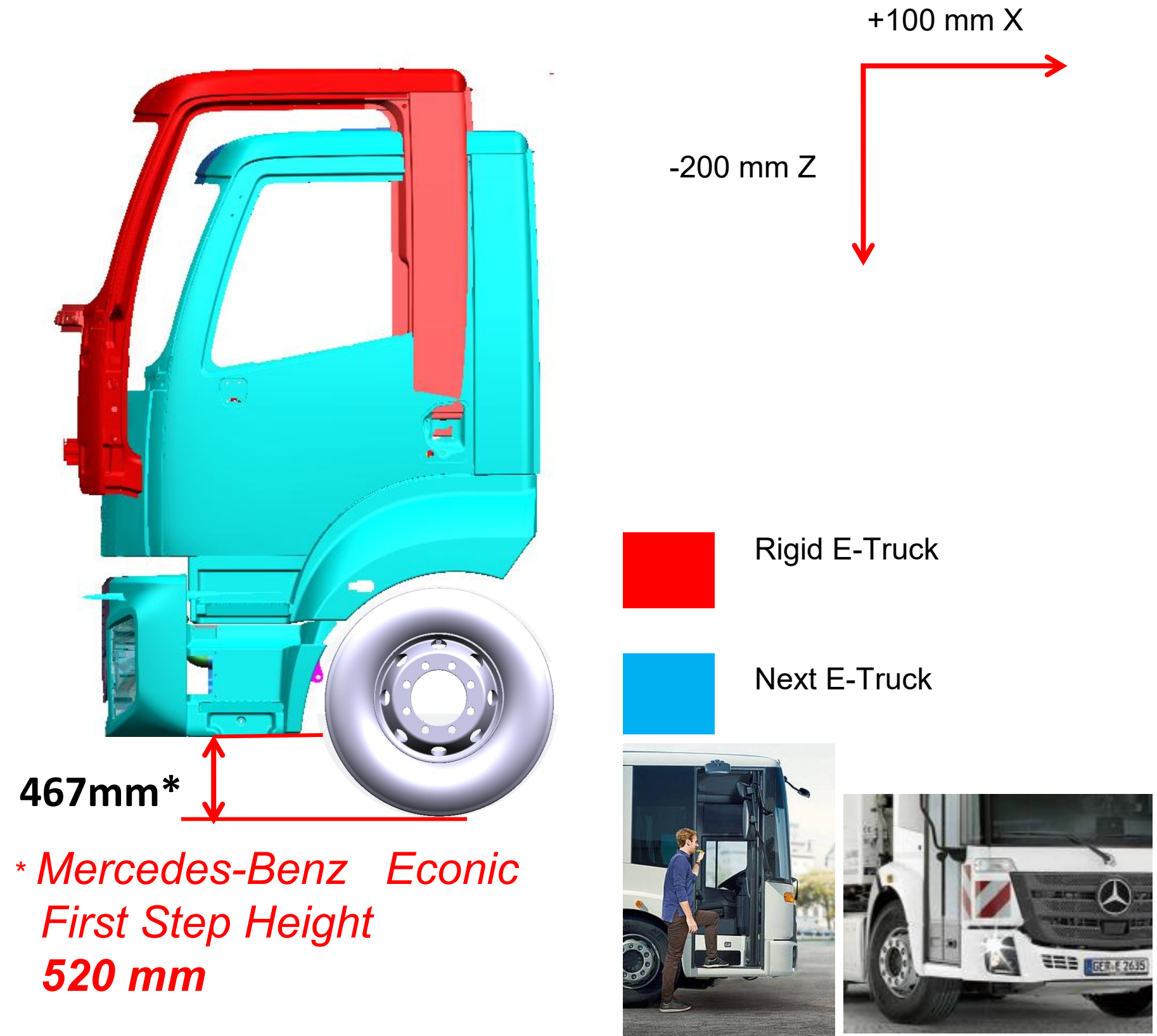
Easy entry to the cabin with two side steps and lower position.

Better driver vision especially for urban usage.

Improved aero performance

Construction short bumper implementation on road truck for better ground clearance

With R19,5 Wheel size usage (First time in Truck projects), 467mm first step height can be achieved.



With new cabin position and smaller tire size first step height is 467 mm

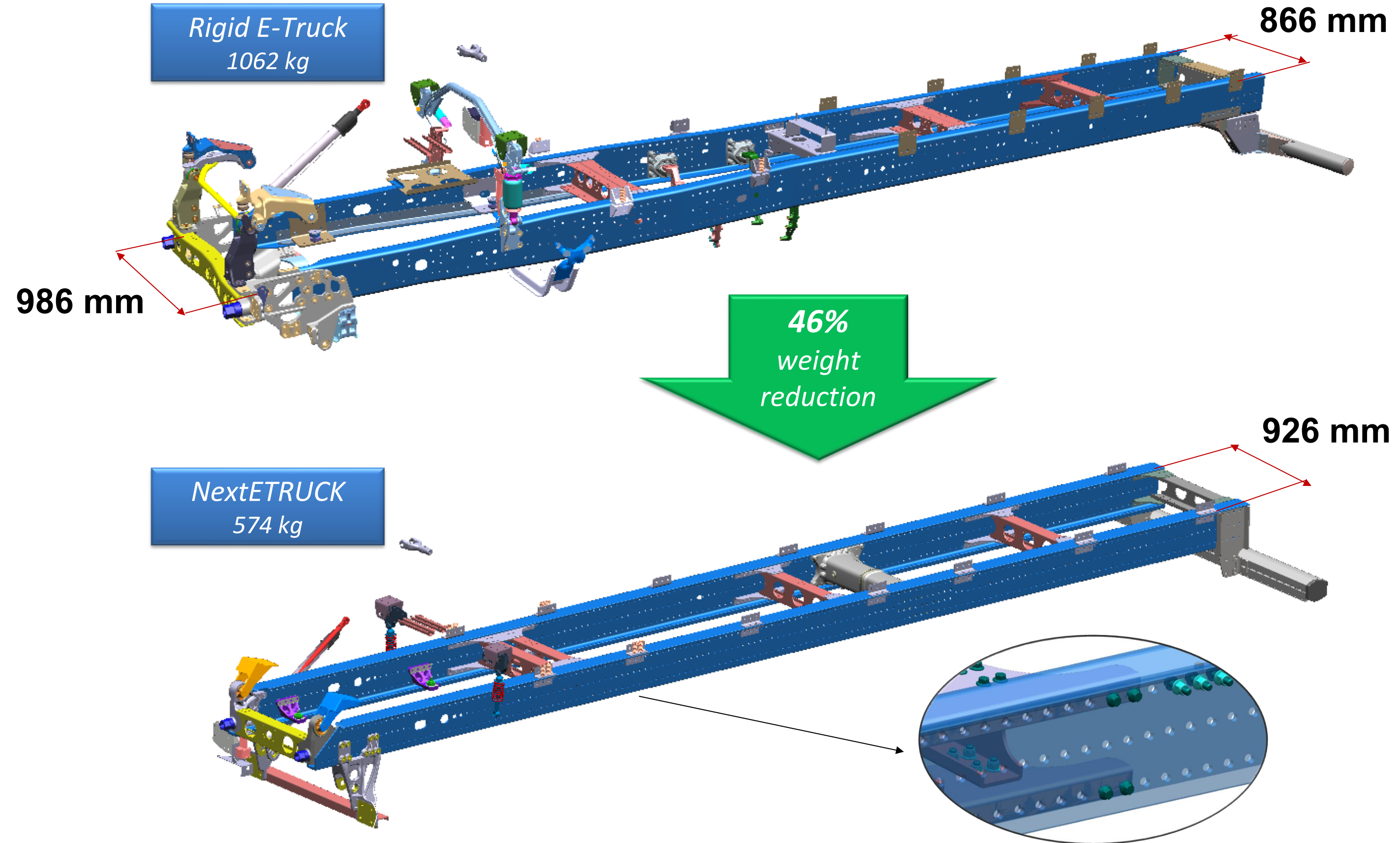
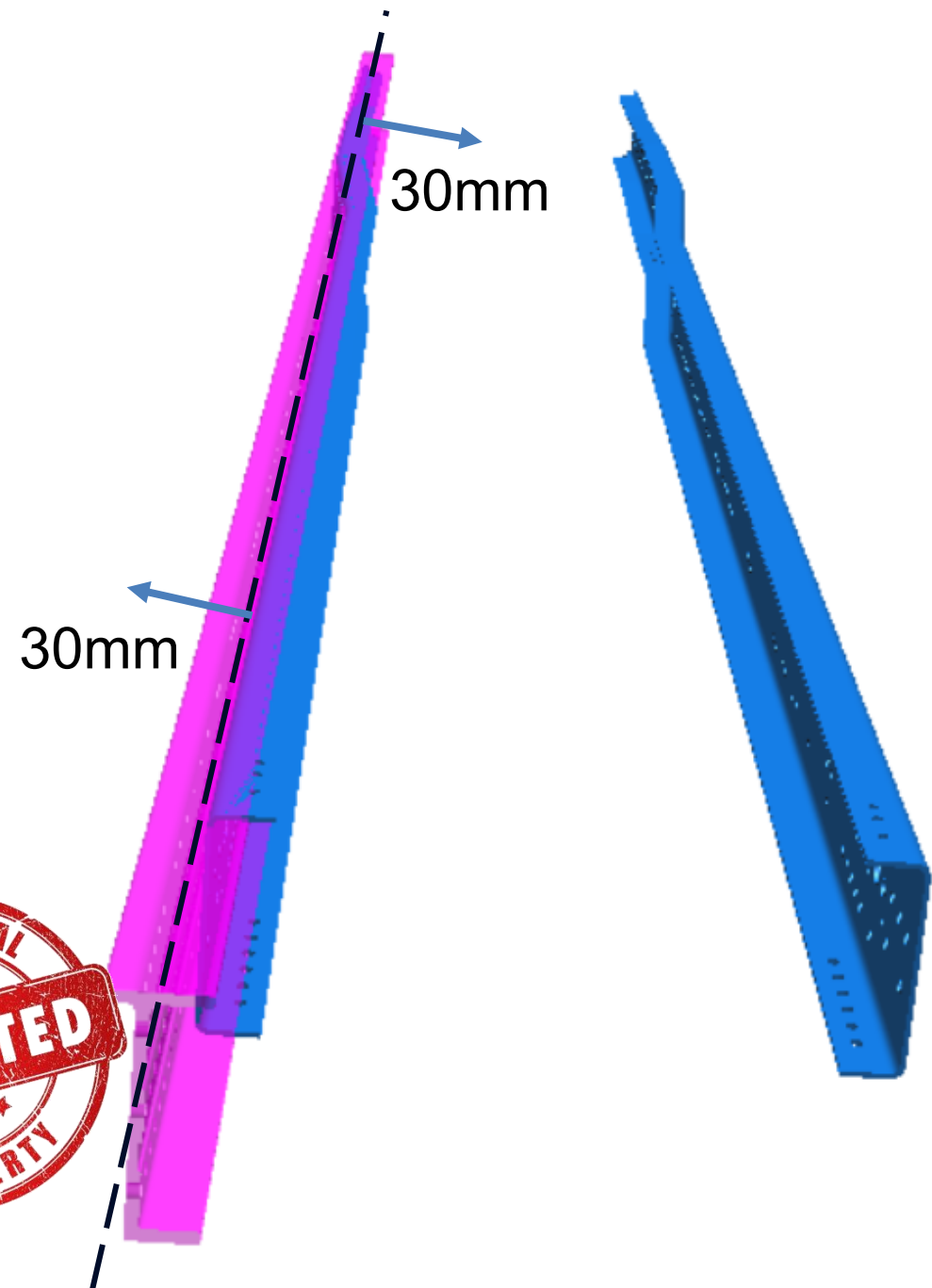


# LADDER FRAME

All frame components are changed

Lightweight, and modular ladder frame

Ordered hole pattern on side members



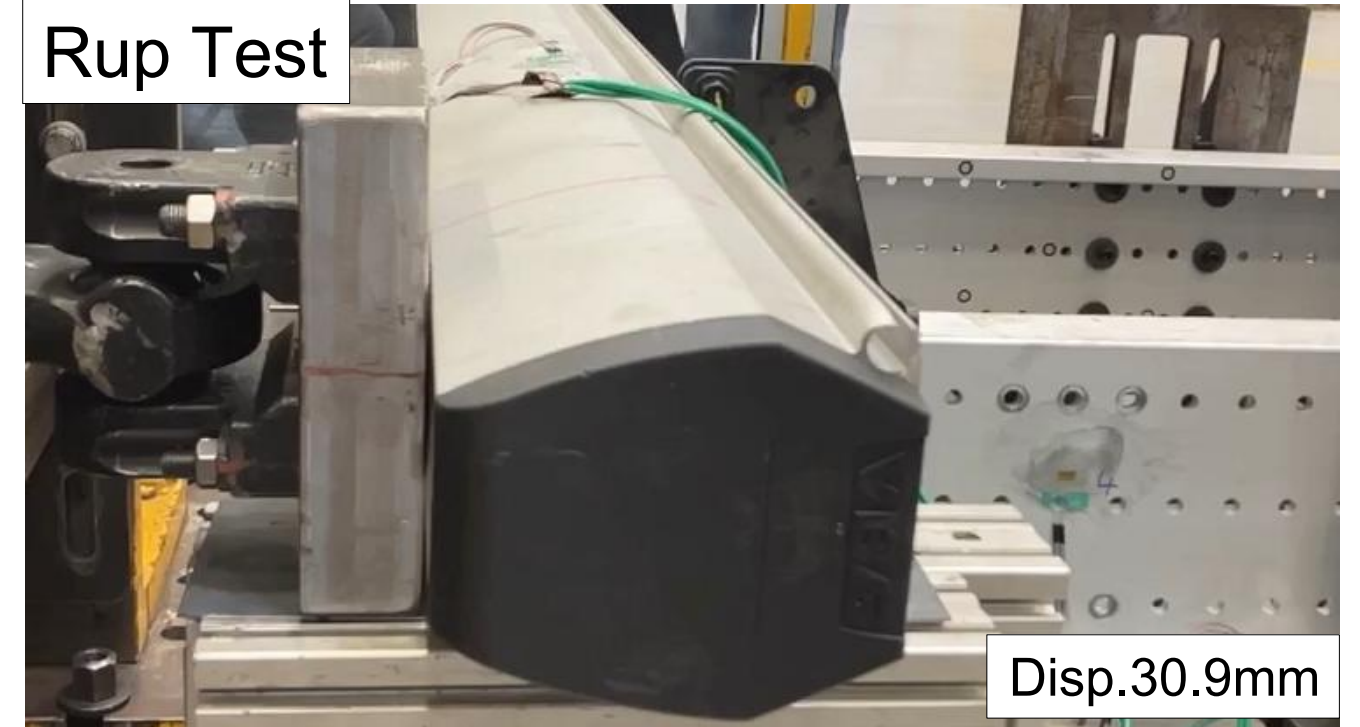


# LADDER FRAME - TESTING

Torsional&Bending Stiffness Test



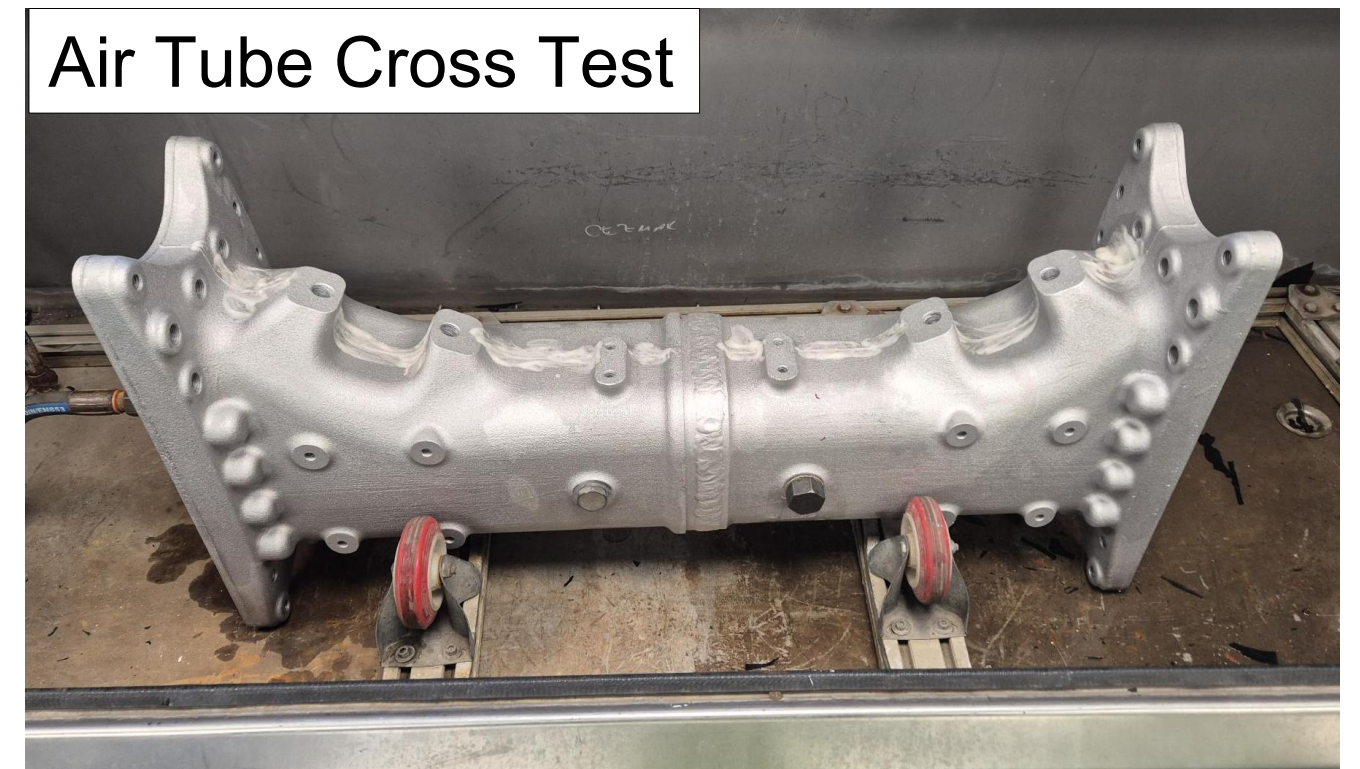
Rup Test



Disp.30.9mm



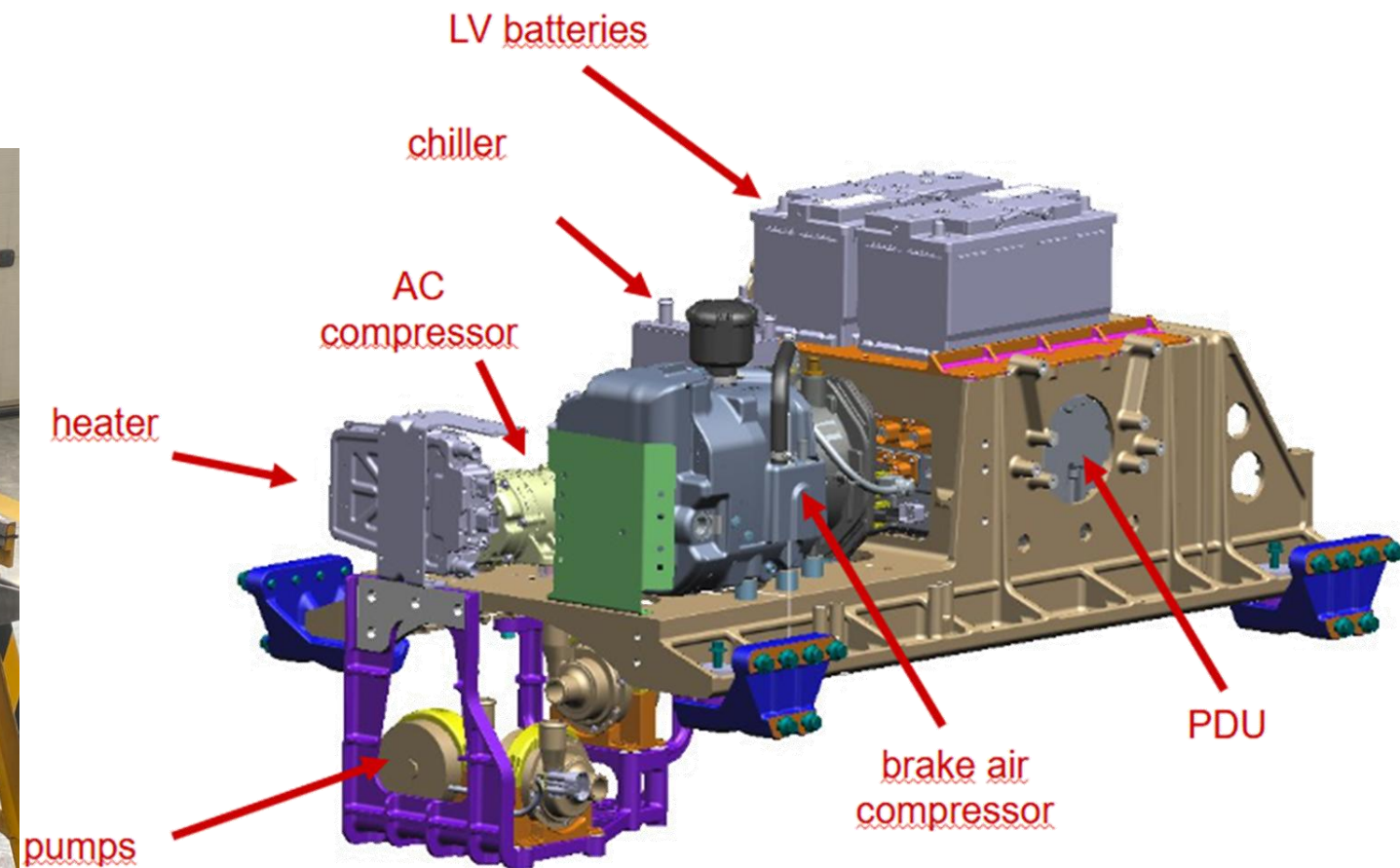
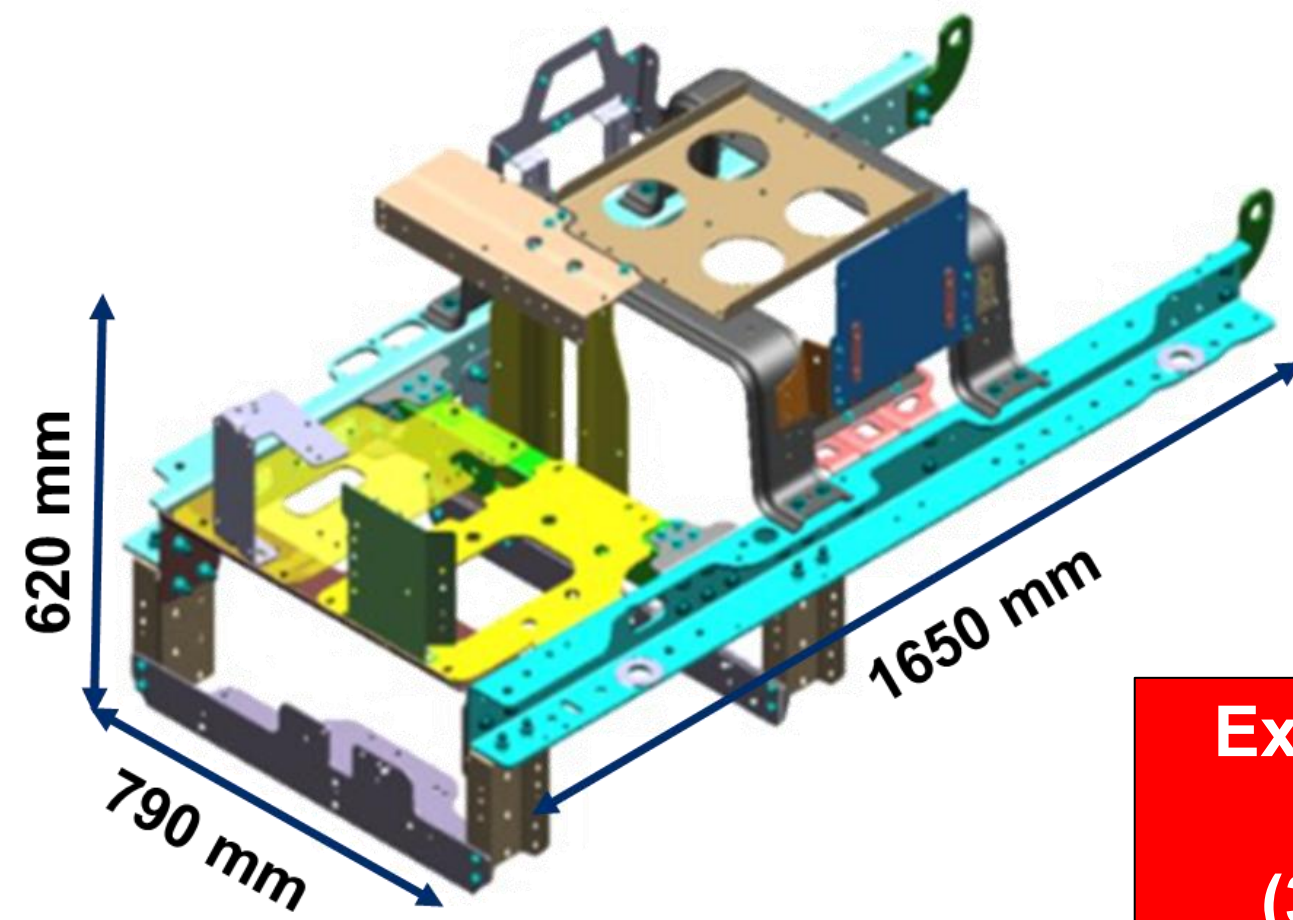
Air Tube Cross Test



	Test	CAE
Torsional Stiffness	80.84 kNm/rad	79.20 kNm/rad
Bending Stiffness	4.14 kN/mm	4.15 kN/mm



# Mega-Cast Undercab Carrier:



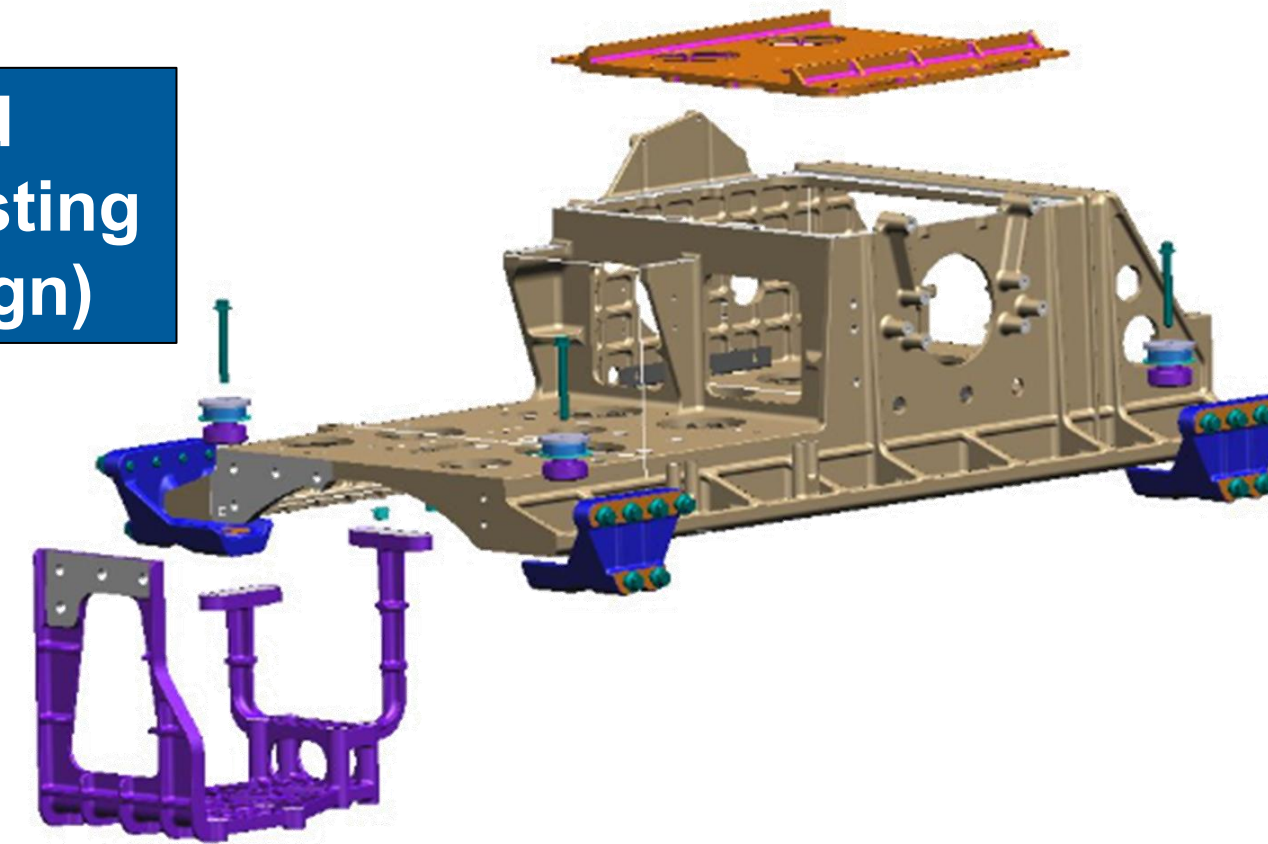
**Existing Steel Design**  
161 kg  
(33-part assembly)

**3D Sand-Printed Aluminum Giga-Casting**  
66 kg (3-part design)

*The under-cab carrier system is designed to carry electric vehicle systems with a total weight of approximately 150 kg.*

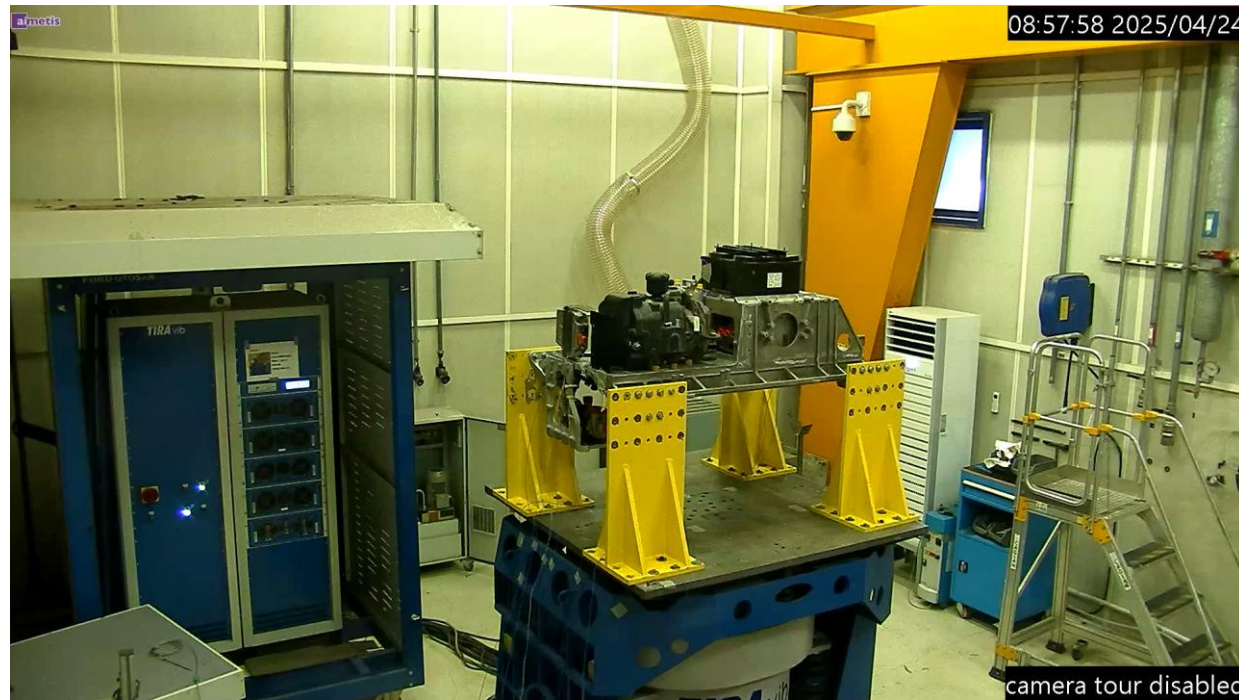


**60 % Weight Reduction (95 kg)**





# UNDERCABIN - TESTING



Undercab shaker test



These small cracks are result of cast part being tipped over and fell to the ground after casting process. No link to the shaker test.



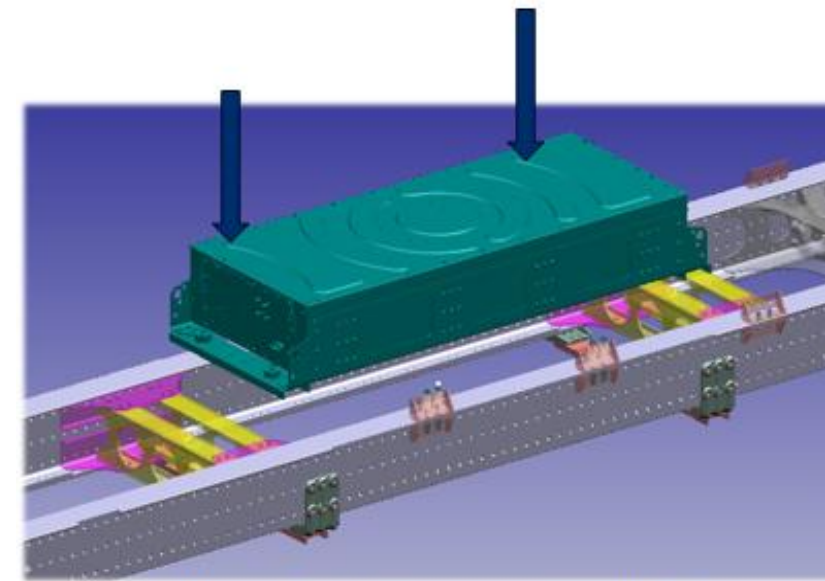
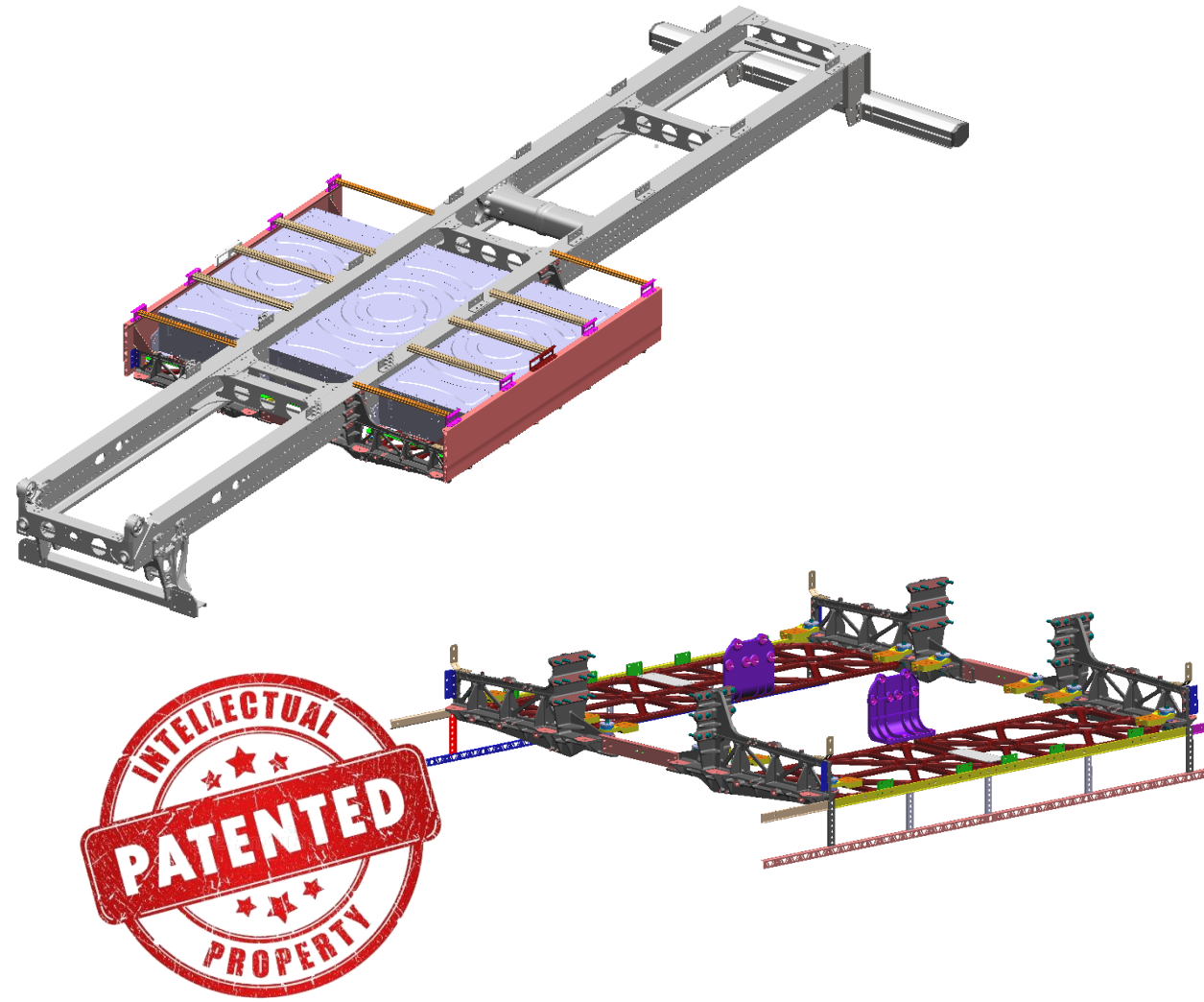
After penetrant spray application



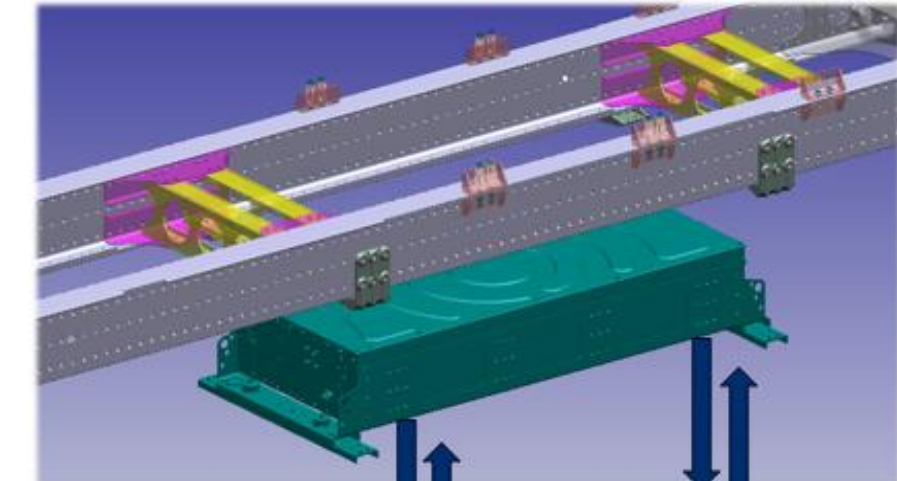
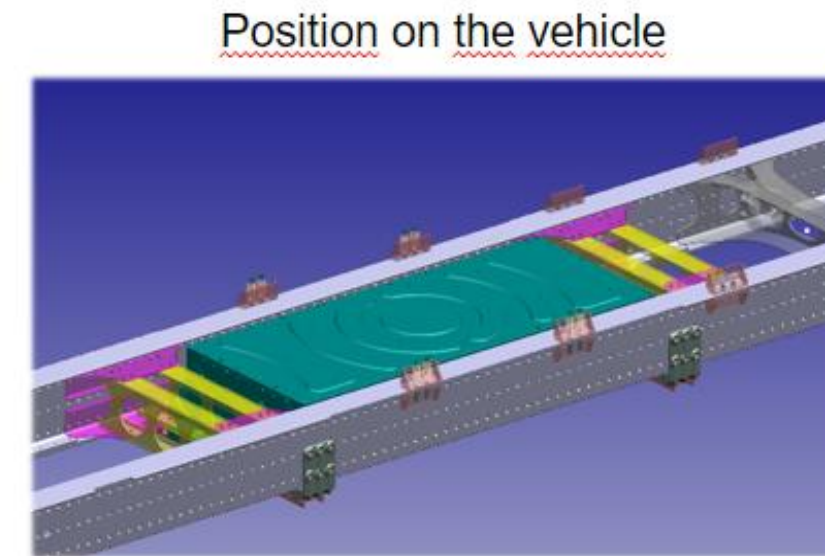
Acceptable wear in mounts  
(better than rigid e-truck)



# Battery Location & Serviceability



Battery decking on vehicle line from the top of the chassis.



Battery decking at service usage from the bottom of the chassis

## 3rd Battery Location

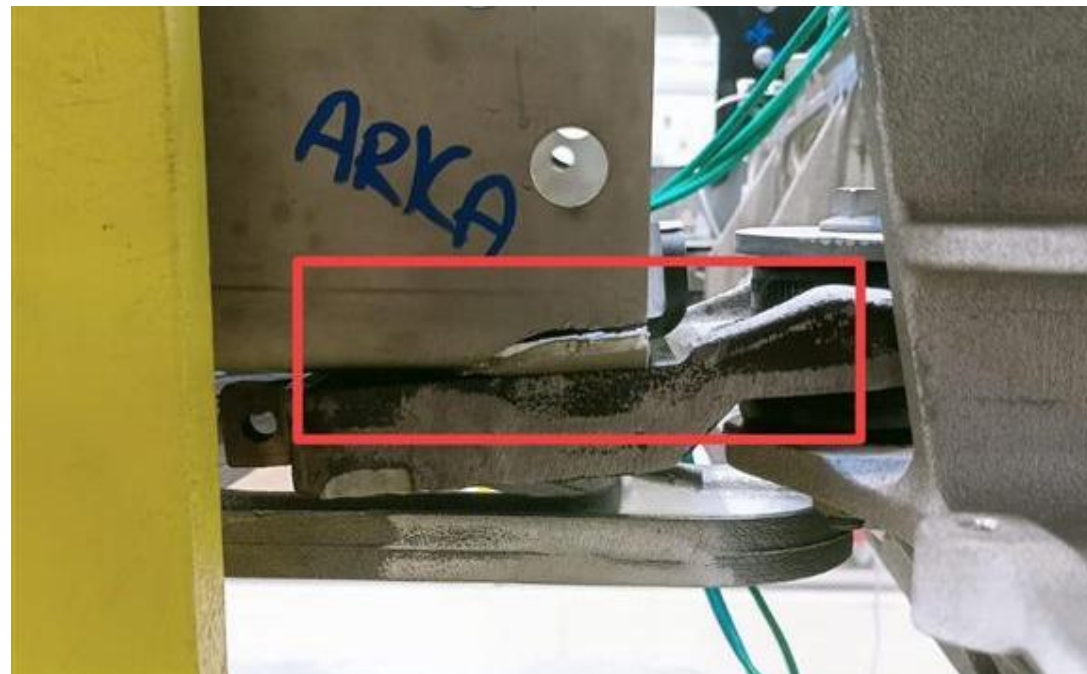
- 3rd battery is positioned between siderails.
- 3rd battery decking is improved at vehicle line and in service usage with new assembly strategy.



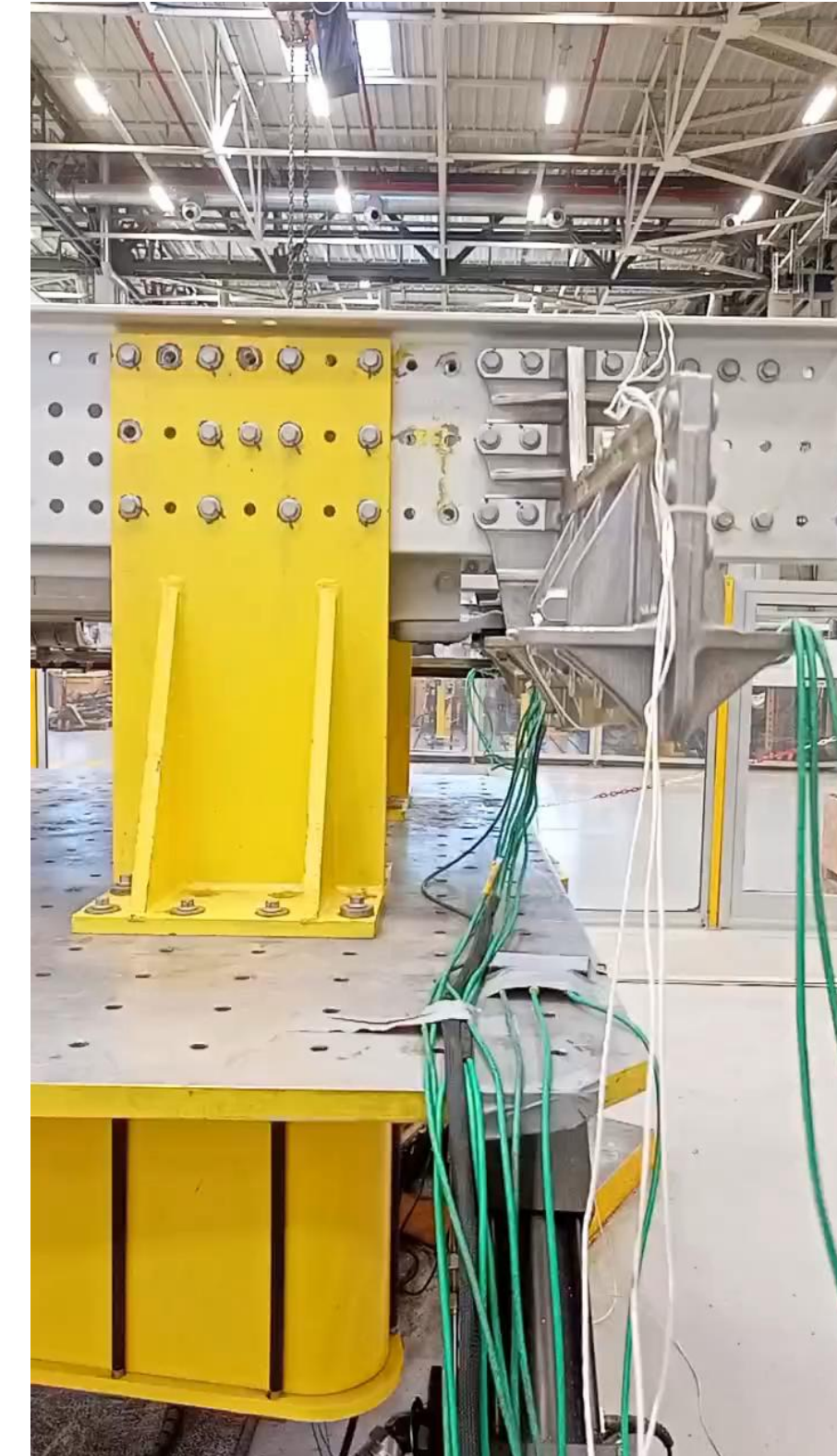
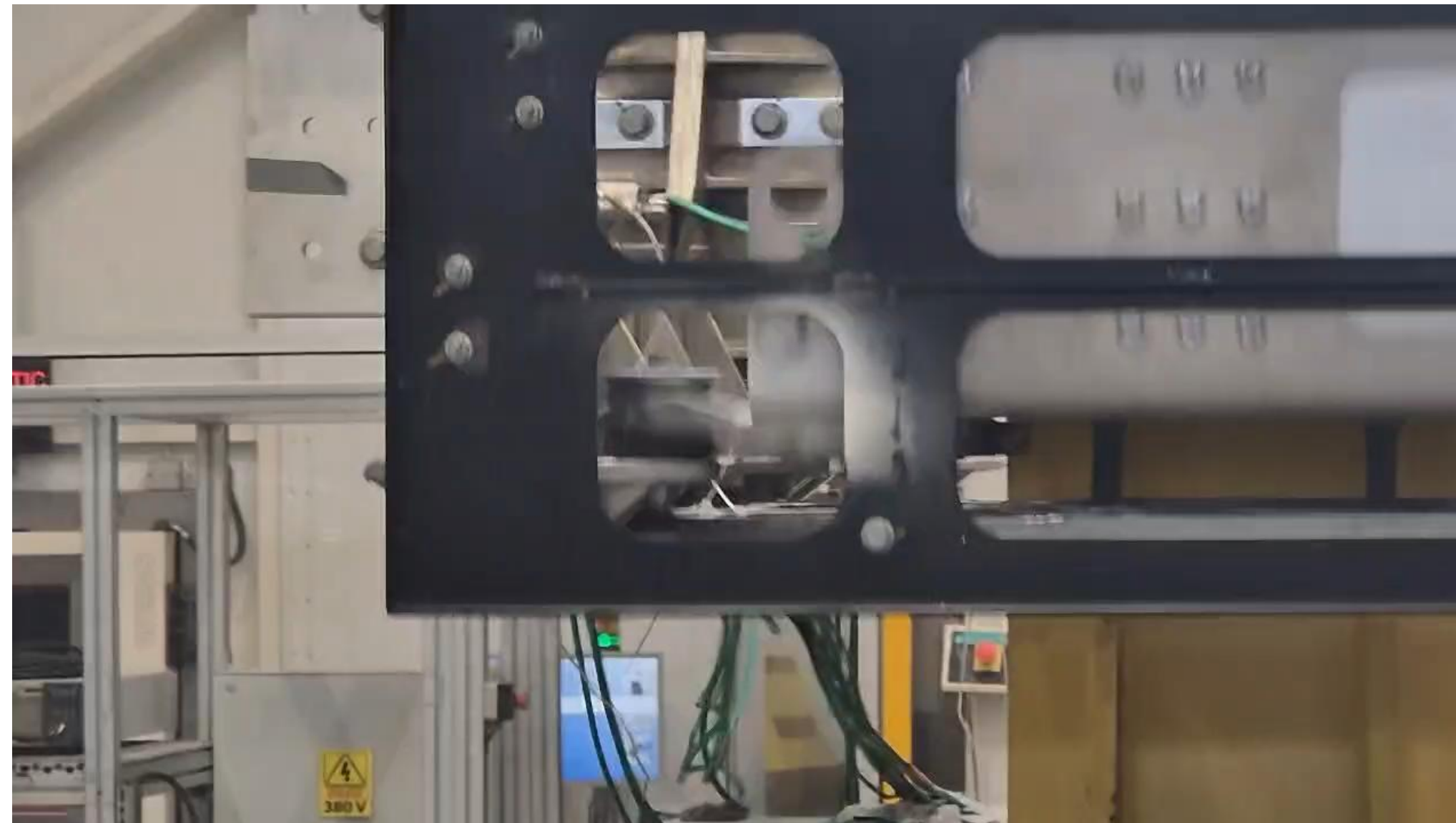
# Battery Carriage MAST Tests

Tests are conducted for CAE correlation.

Although no damages were present in the aluminum or battery mounting brackets, the Akasol Battery had its mounting brackets cracked several times.

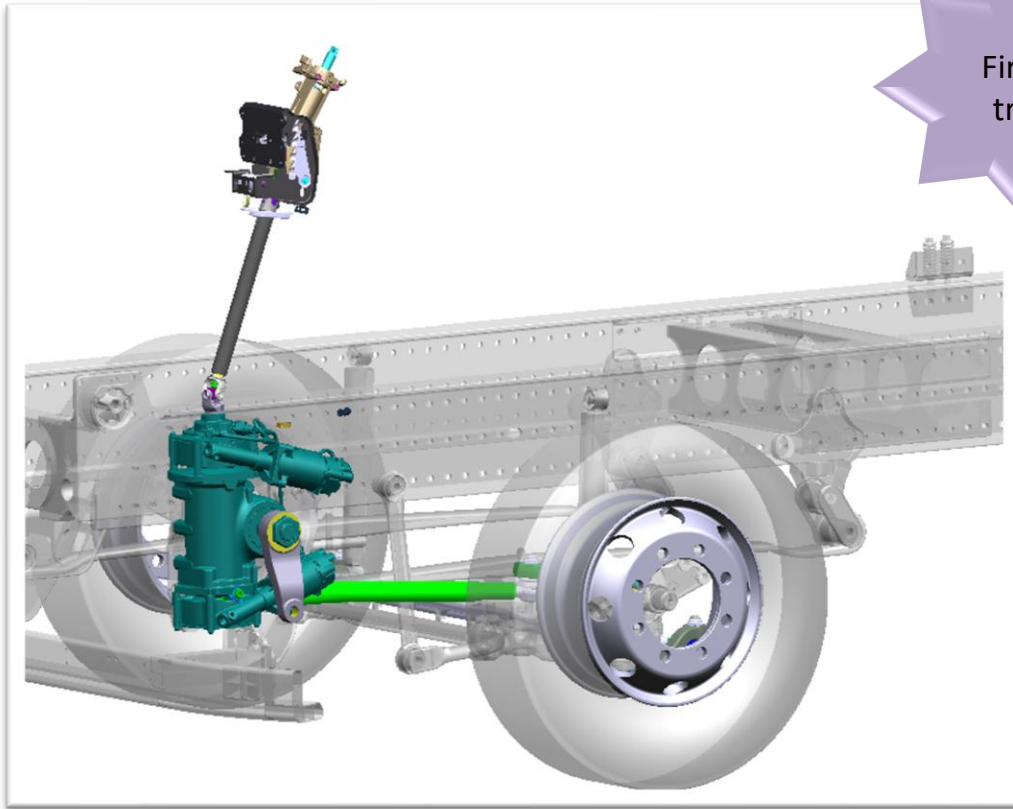


Damage is seen on all 4 sides of Akasol





# Steering & WTJ



First in truck

## EPS

- New technology
- No hydraulic support needed
- Supports fully autonomous drive(L4).
- High efficiency >82 savings vs. EHPAS
- H84X CAAS Road data comparison



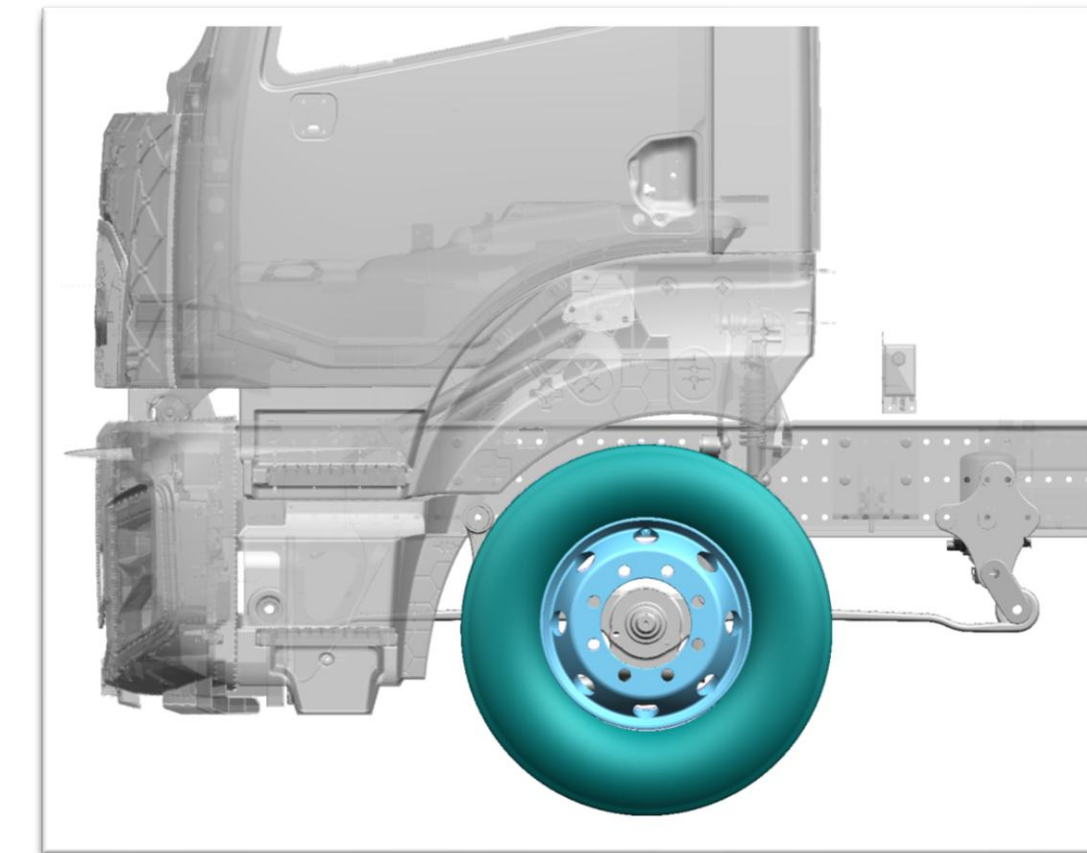
- Plug & Play component
- No oil in assembly line
- No additional e-pump required in BEV/FCEV
- Power on Demand component
- Better overall efficiency
- Emergency Steering Support
- Steer-by-wire applicable
- Level 4 Automation ready
- Extremely low free play and excellent steering feel



Variable hydraulic pump

Calculation based road load data AS Bosch profiles

	Power demand ServoE	Power demand Servotwin with variable pump	Savings ServoE vs. Servotwin
Distribution traffic (0.8 mio. km)	105 W	593 W	82%
Highway / long haul (1.5 mio. km)	45 W	504 W	91%



## 19,5 inch wheels and tyre

- Aluminum rim
- Lighter system
- Lower SLR

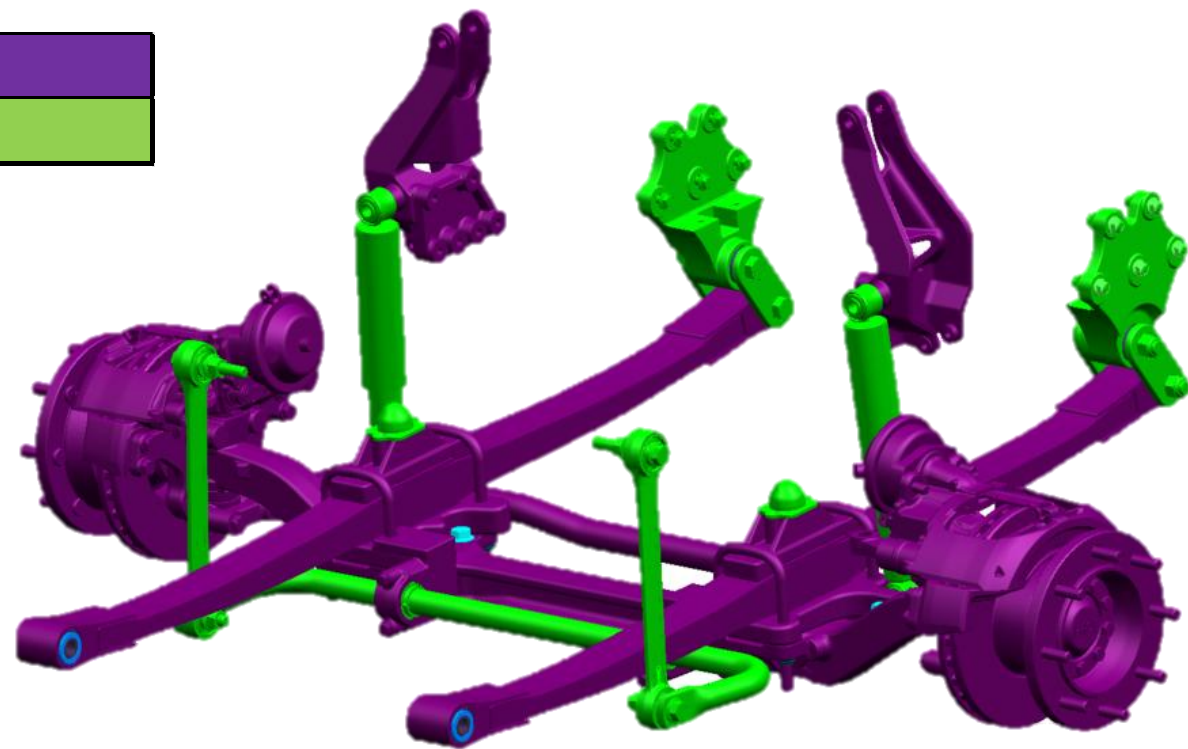
↓ 171 kg Weight Reduction

↓ 90mm Lower SLR



# Front & CAb suspension system

NEW	
C/O	

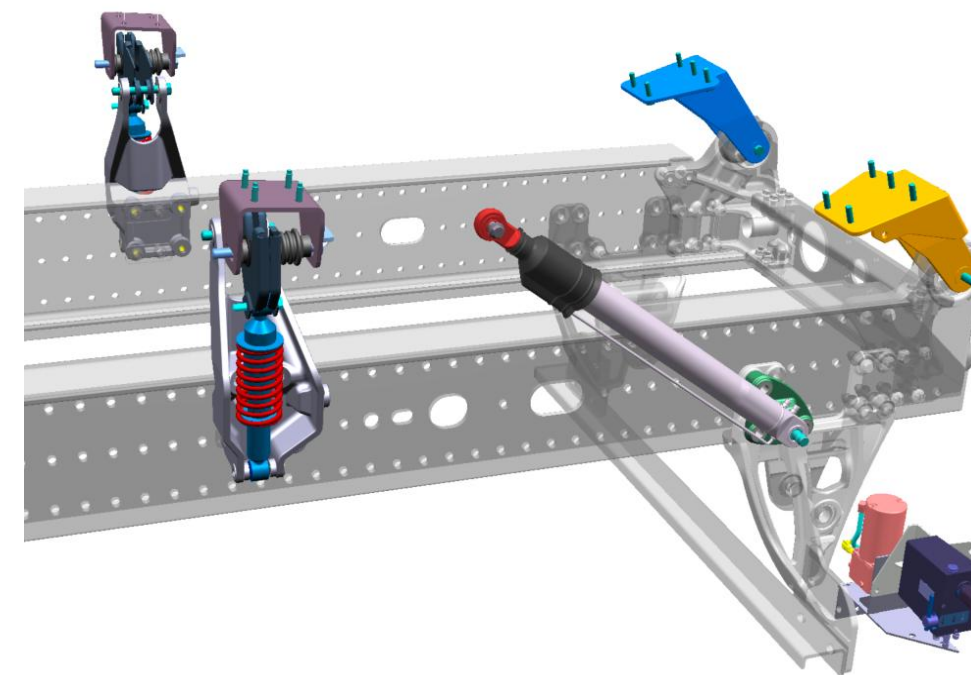
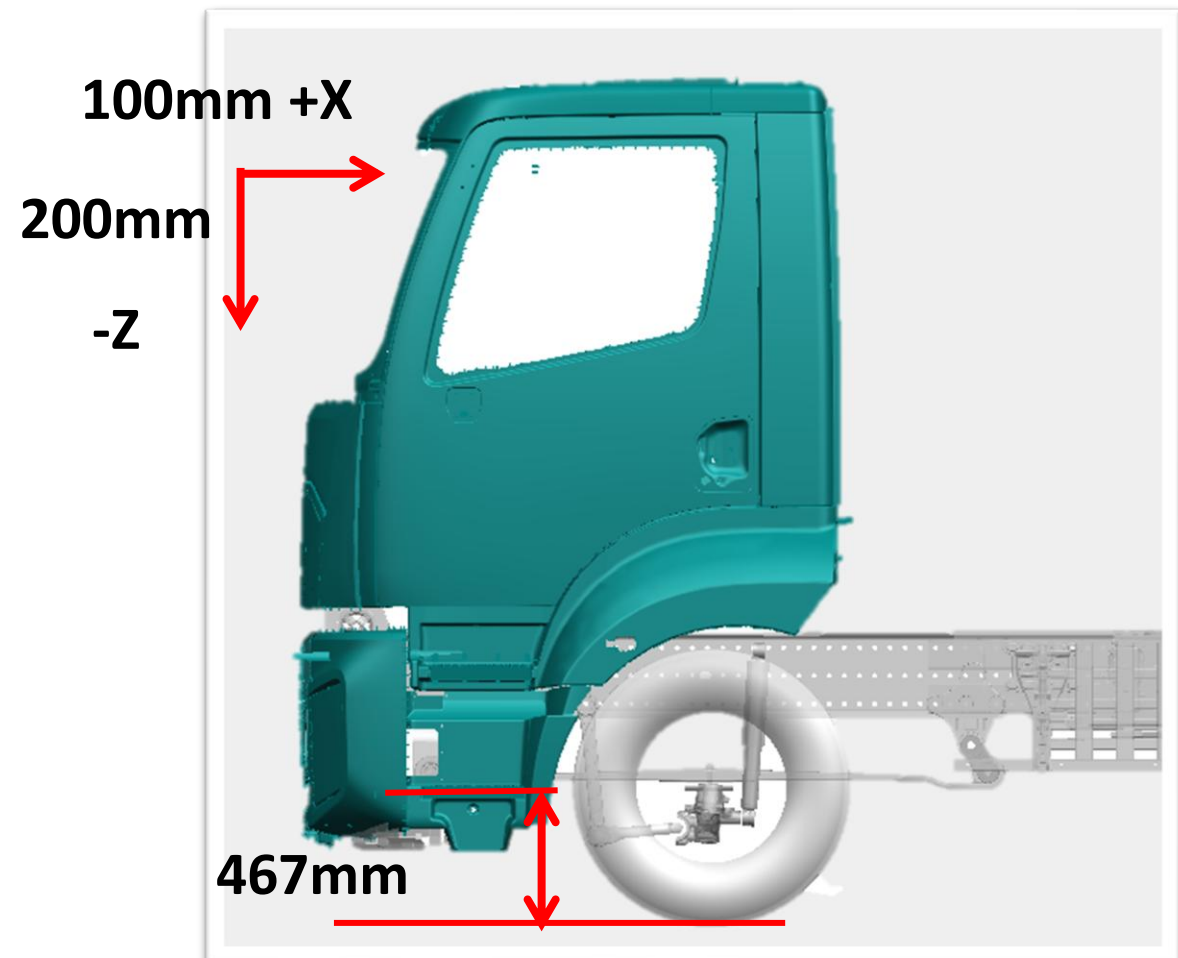


- Much lighter composite leaf springs
- Off-the-shelf axle subsystem compatible with 19" rims (including braking and steering parts)
- C/O anti-roll subsystem from H625 WR (shorter version)



System	Weight
Current Frt Susp.	480 kg
Next e-Truck Frt Susp.	370.2 kg

Total: 109,8 kg WR



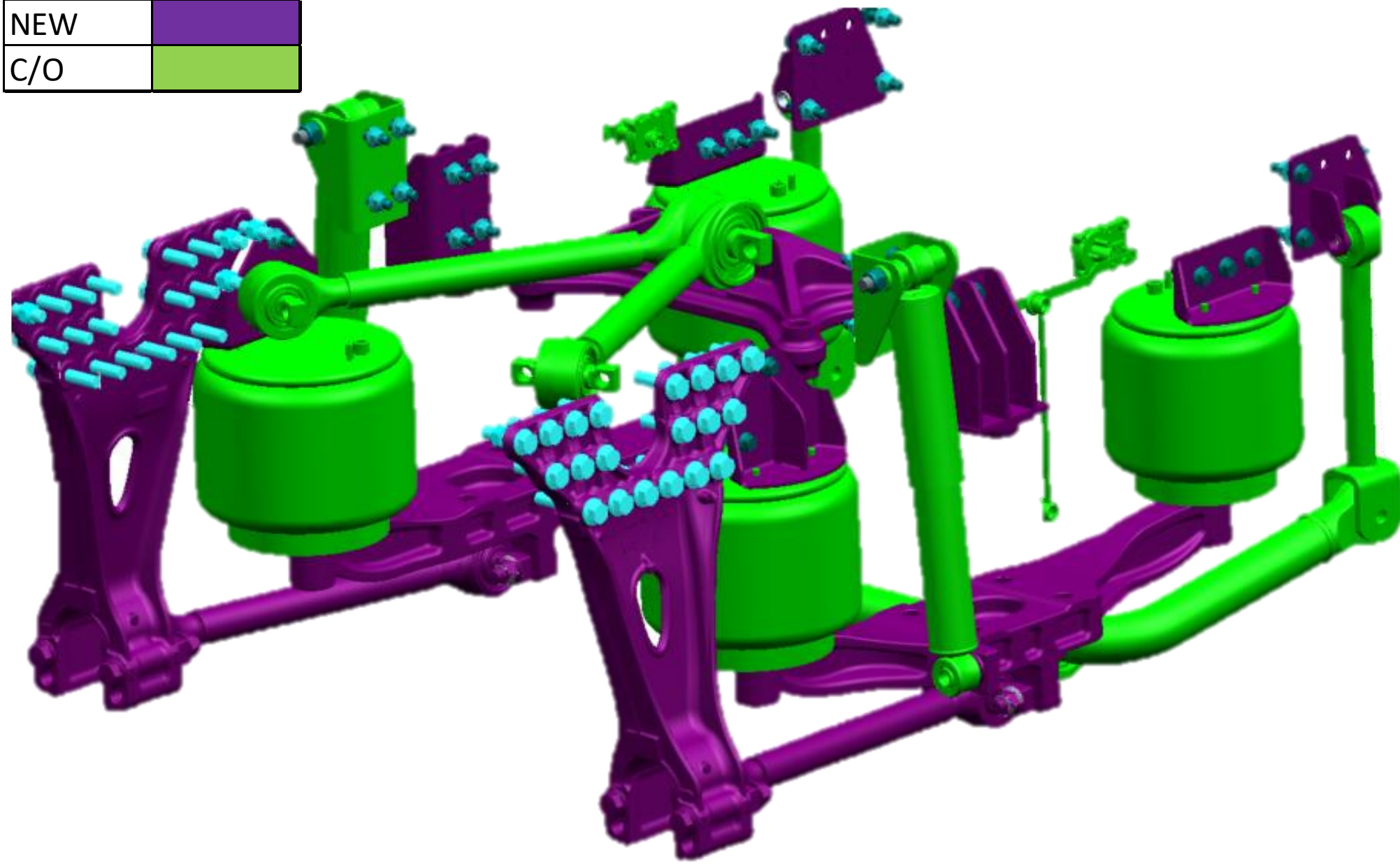
*Lower Cabin Location*

- Better driver vision
- Easier to get on the truck
- 467mm first step height



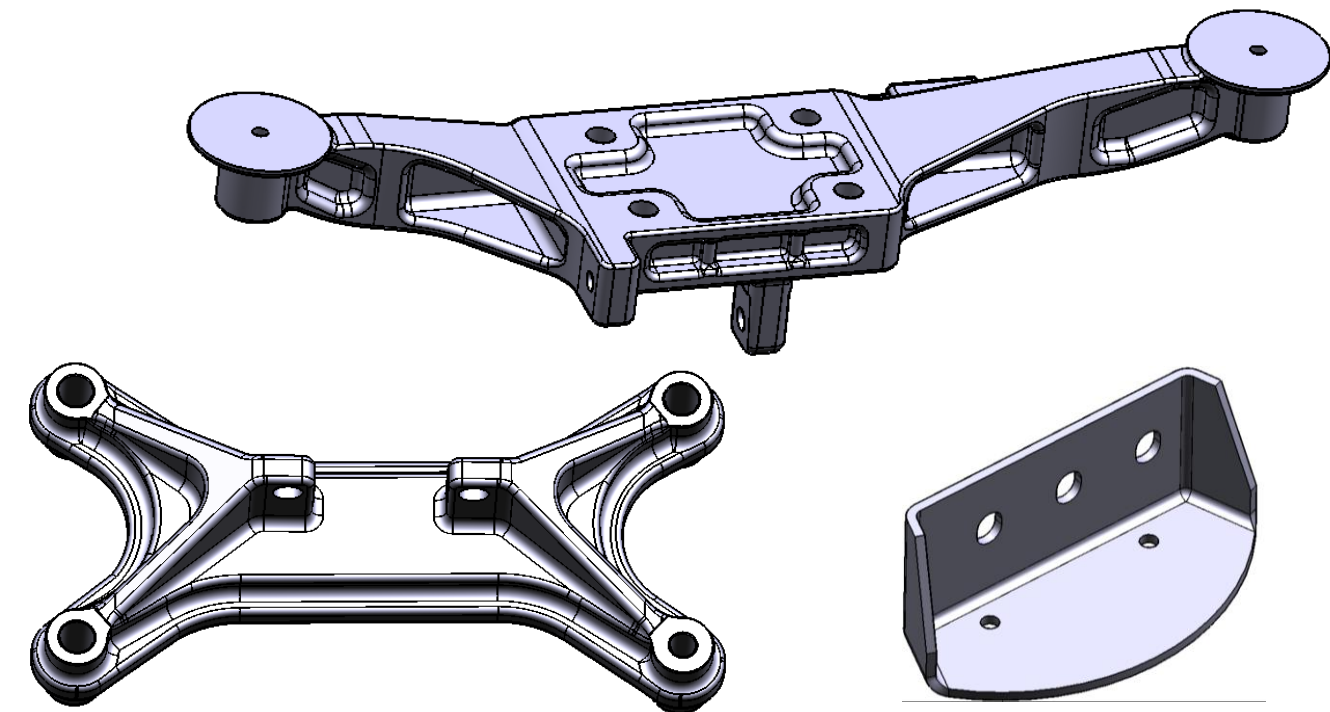
# Rear Suspension System

NEW	
C/O	



What's new:

- In-house and ZF hybrid system
- A lighter carrier beam compatible with e-axle
- Aluminum V-arm bracket
- Lighter sheet brackets for air springs



System	Weight
Current C4AS	322,7 kg
Next e-Truck C4AS	294,6 kg

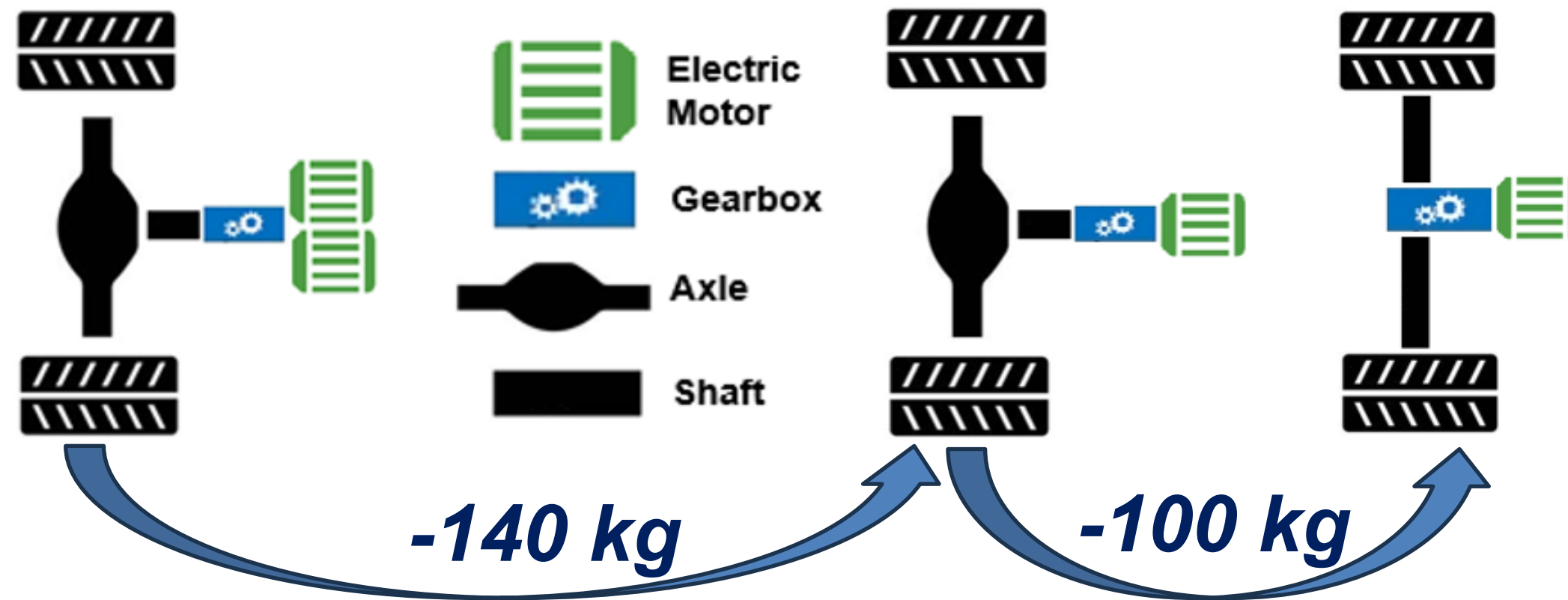
Total: 28,1 kg WR



# POWERTRAIN STUDIES



19T Baseline Vehicle

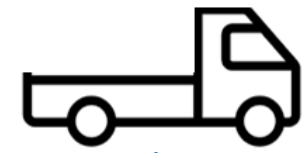


16T NextETRUCK

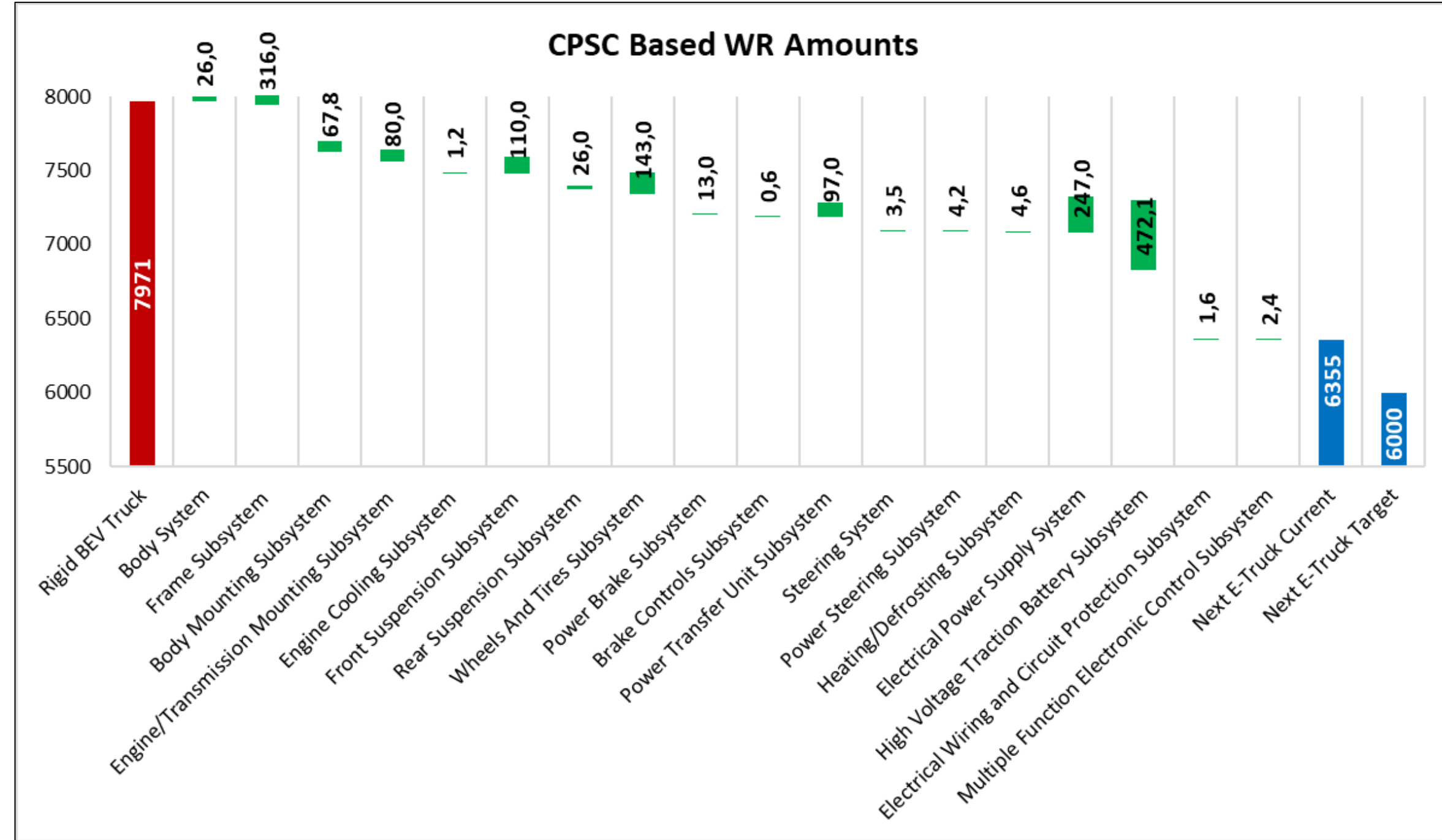
- By using advanced technology single-motor e-axle eDrive system instead of the dual-motor central eDrive system used in the 19T Baseline Vehicle, a 240kg weight reduction was achieved. Moreover, single-motor central eDrive system is 100kg heavier.
- The system volume was also reduced.
- In addition, by using the 19.5" architecture instead of the 22.5" architecture, a lightening advantage was also achieved in the brake and wheel-rim systems.
- Better battery packaging is designed.



# WEIGHT STATUS



	BKW 1.Axle (kg)	BKW 2.Axle (kg)	BKW Total (kg)	GVM Total
Rigid BEV Truck	4790	3181	7971	19000
Next E-Truck	3360	2578	5938	16000



Achieved weight reduction is 1607 kg



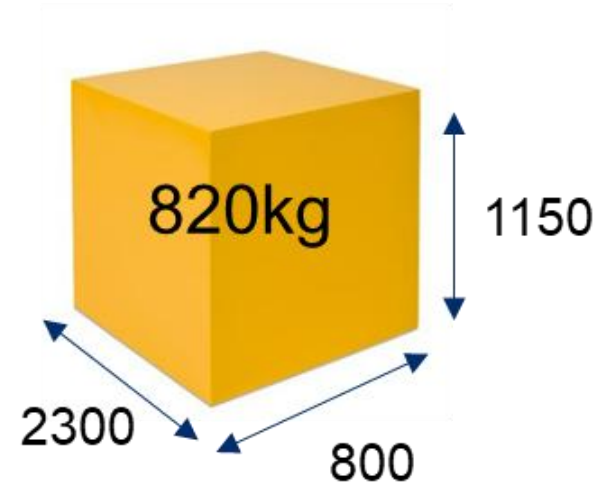
# NextETRUCK: Builf of vehicel



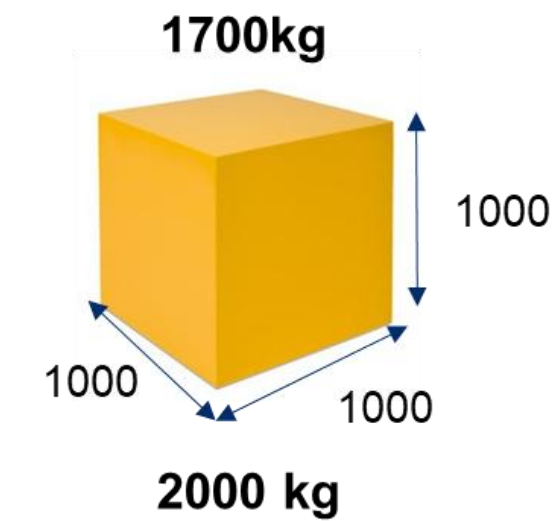
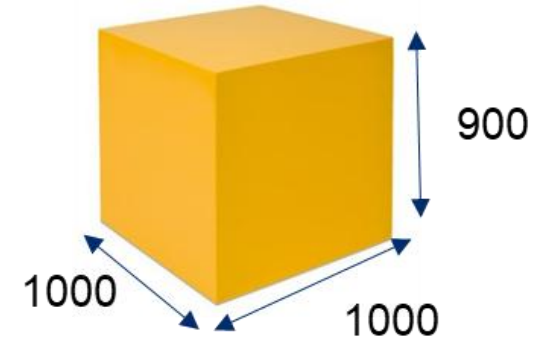
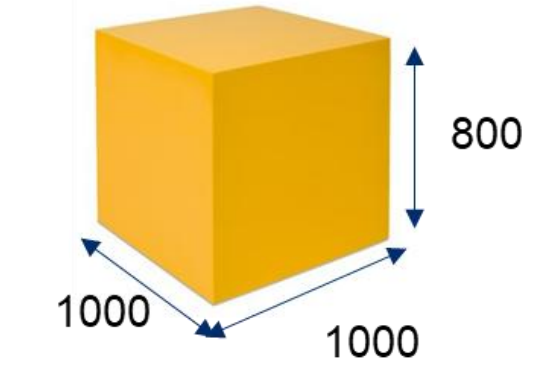
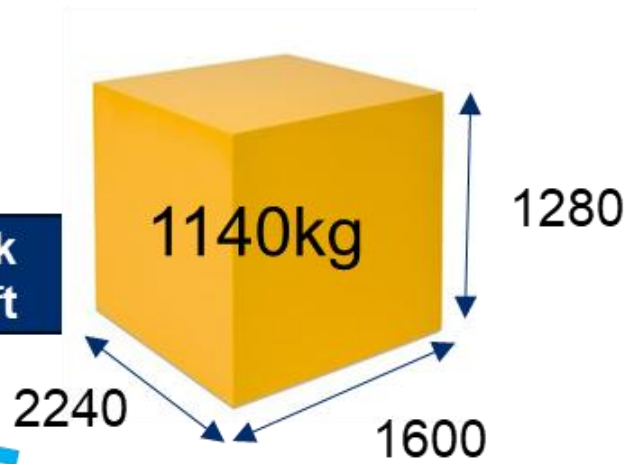


# Commercial or Dummy Cargo Transport

Rear axle



Panther engine



Commercial Cargo Plan

Dummy Cargo Plan



# Time Plan

	2026																				
	May				Jun					Jul				Aug				Sep			
	04	11	18	25	01	08	15	22	29	06	13	20	27	03	10	17	24	31	07	14	21
Instrumentation for Thermal Tests	█																				
Thermal Hydraulic Tests			█																		
Low mue (Brake modulation)					█	█	█														
Steering L3 (Bosch)								█													
Performance & Efficiency Improvement									█	█	█	█	█	█	█	█	█	█	█	█	█
TCO Calculation										█	█	█	█	█	█	█	█	█	█	█	█
<b>4. Demonstration Proposal</b>																					



## Demo Route Details – Internal Tests



**Ford Otosan Test Track**



### **Lateral Loading Track – LLT (Urban Delivery Representation)**

This road represents **low-speed urban distribution driving**, characterized by continuous turning, lateral loading and steady low-power operation.

- **Lap length:** 1.15 km
- **Maximum speed:** 40 km/h
- **Operation mode:** Continuous laps at constant speed

### **Vehicle Dynamic Track – VDT (Regional Delivery Representation)**

VDT is used to represent **regional delivery driving under VECTO Regional Delivery conditions**, combining moderate cruising speeds with continuous rolling turns and transient speed variations.

The track geometry consists of a **wide triangular loop** at the beginning of the main section, gradually narrowing into a **straight driving segment**, followed by a **small loop at the end** for rolling turnaround.

This layout enables realistic regional driving without full stop events.

- **One-way length:** 1 km
- **Cycle definition:** 1 km forward + 1 km return → **2 km per cycle**
- **Operation mode:** Continuous rolling cycles, **no full stop**



The 200 km daily driving cycle combines rolling VDT regional delivery operation with low-speed LLT urban driving, fully aligned with the VECTO Regional Delivery cycle and optimized for energy consumption and thermal stability assessment.



# Demo Route Details – Internal Tests

Track	Cycle / Lap Definition	Quantity	Distance [km]	Driving Representation
<b>VDT</b>	Rolling cycle (1 km out + 1 km back, up to 80 km/h)	85 cycles	170 km	Regional delivery driving, main energy & thermal load
<b>Lateral Loading Track</b>	Continuous lap (1.15 km, max 40 km/h)	26 laps	30 km	Urban low-speed delivery driving
<b>Total</b>			<b>200 km</b>	Daily VECTO Regional Delivery cycle



**Vehicle Dynamic Track – VDT**  
(Regional Delivery Representation)



**Lateral Loading Track – LLT**  
(Urban Delivery Representation)



# Demo Route & Driver Details – Public Road

**Route 1: Istanbul to Bursa**

- Start: Ford Otosan Eskişehir Fabrikası, Çarşı, E...
- Destination: Golcuk Ford Factory, Sepetlipinar, 41275
- Route: via D650
- Time: 2 hr 21 min
- Distance: 198 km
- Notes: Fastest route now due to traffic conditions. This route has tolls. This route has restricted usage or private roads.

**Route 2: Bursa to Istanbul**

- Start: Ford Otosan Eskişehir Fabrikası, Çarşı, E...
- Destination: Karttepe Ski Center, Nusretiye, 41250 Kart...
- Route: via Bursa Eskişehir Yolu/D200/E90 and Gebze-Orhangazi-Izmir Otoyolu/O-5
- Time: 2 hr 43 min
- Distance: 230 km

**Route 3: Bursa to Istanbul**

- Start: Ford Otosan Eskişehir Fabrikası, Çarşı, E...
- Destination: Karttepe Ski Center, Nusretiye, 41250 Kart...
- Route: via D130/E881
- Time: 1 hr 56 min
- Distance: 82.3 km
- Notes: 56 min without traffic. This route has restricted usage or private roads.





# Thank you for your attention!



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Co-funded by the European Union



Co-funded by UK Government

This project has received funding from the European Union's Horizon Europe programme under grant agreement No 101056740

