

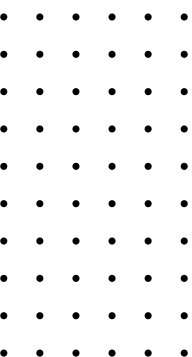


SHANGHAI OE INDUSTRIAL CO., LTD.



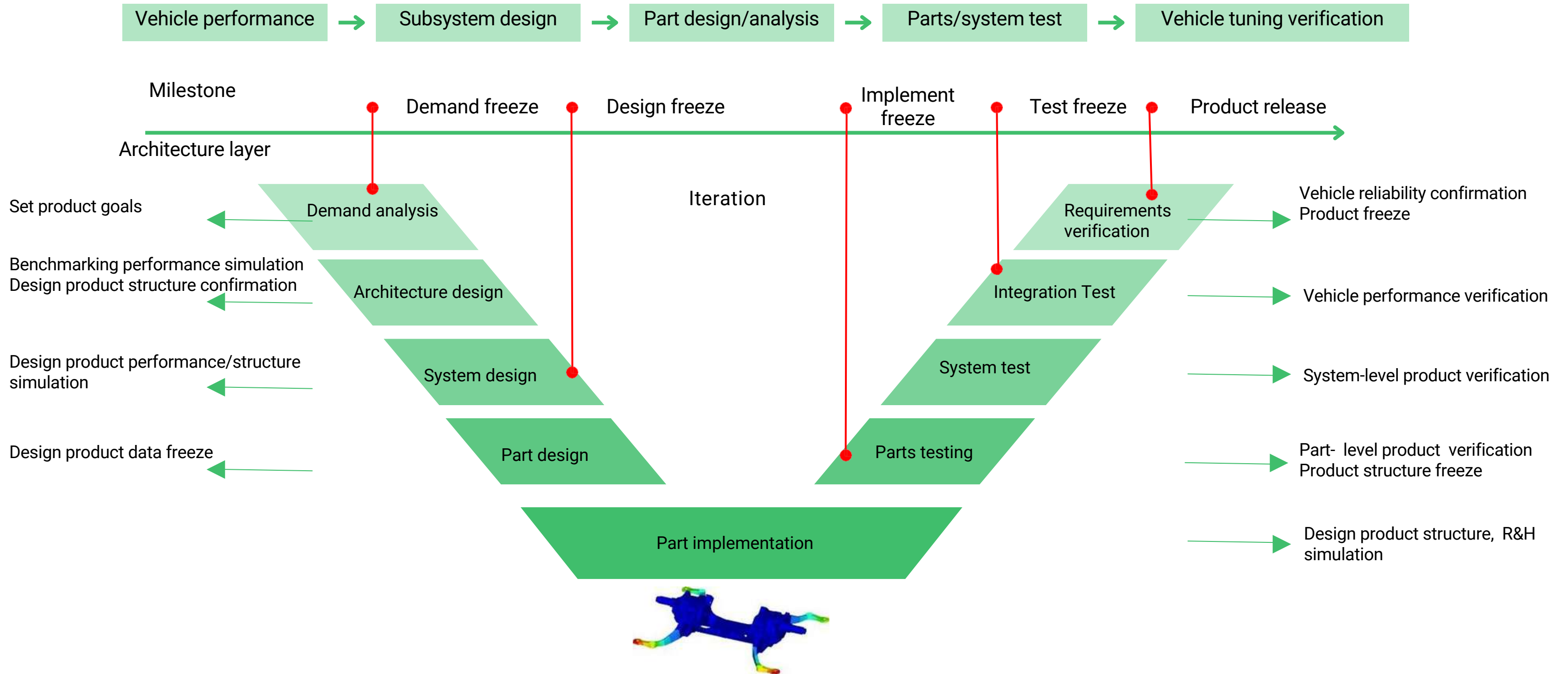
# SHANGHAI OE INDUSTRIAL CO., LTD.

## PRODUCT BROCHURE – ELECTRIC AXLE



# R&D CAPABILITY

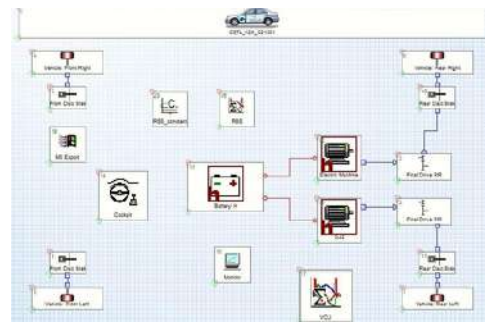
Following functional safety standards, we adopt a V-shaped positive development process. By utilizing advanced project management methods and supportive processes, we ensure efficient project development and reliable products.



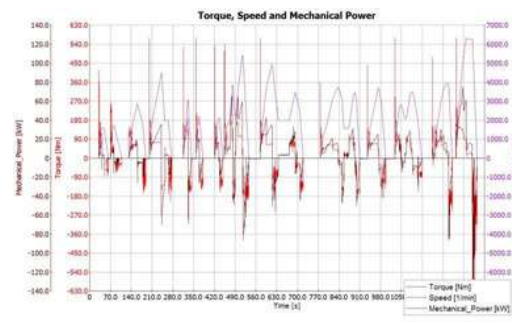


# PRODUCT VERIFICATION

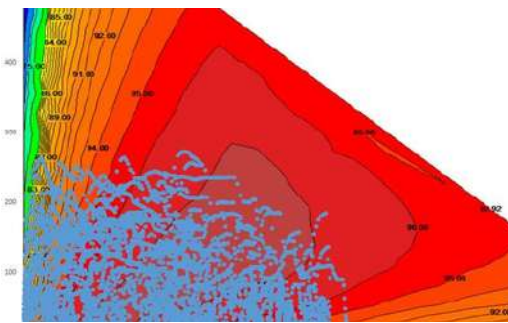
- Based on the customer's power and economic needs, we analyze actual working conditions to optimize motor and system efficiency. We then provide VCU-driving strategy recommendations or integrate economic strategies into the DCU control.
- Using enhanced road spectrum data, we conduct load-bearing reliability analysis to ensure accurate initial design and successful first-time testing, reducing development costs and cycle time.
- By analyzing data from enhanced and social roads, we design the drive system and conduct accelerated fatigue testing to ensure a first-time pass. This process reduces costs, shortens development time, and meets customer needs.



Dynamic and economic analysis



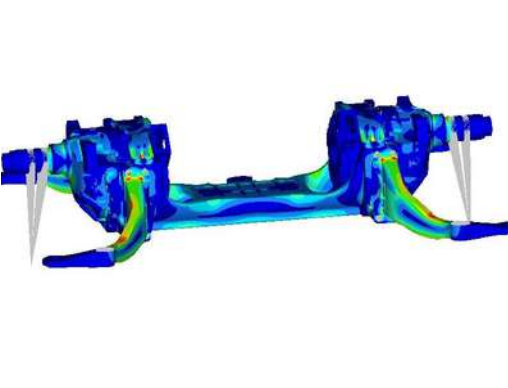
Road condition analysis



Optimize the high efficiency area of the motor according to the working conditions



Rotary drum test



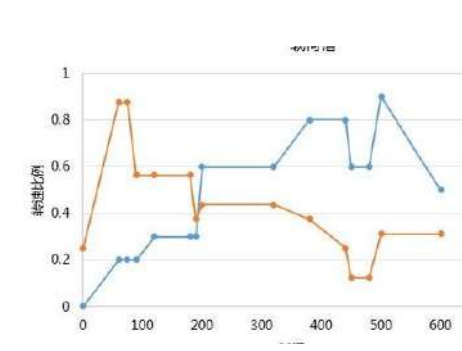
Loading reliability simulation



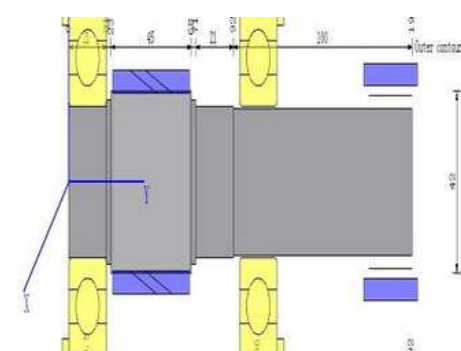
Drive system durability test



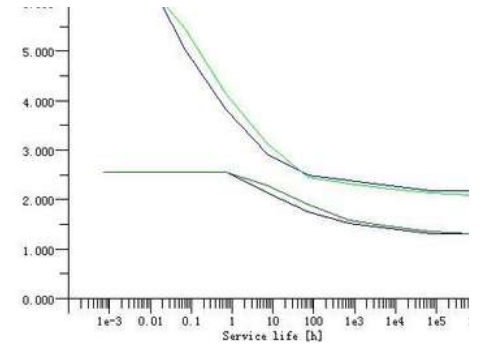
Enhanced road test



Load spectrum



Gear shaft model



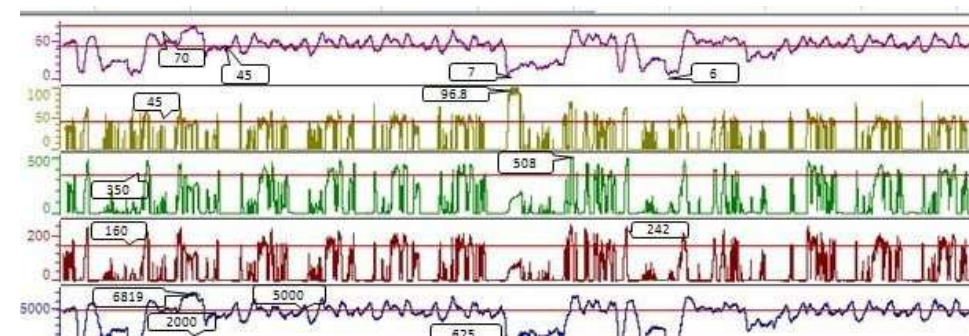
Life prediction



Strengthen the vibration acceleration collection on the suspension spring after the road



Enhancing the acceleration collection of the lower and upper vibration of the suspension spring



Enhancing load spectrum collection of road drive system



Loading reliability test



## FULL VEHICLE COVERAGE

Driven by our forward-thinking approach to customer needs and the future of transportation, we have strategically developed two advanced technological routes in the electric drive axle category: distributed and integrated drive systems. These solutions comprehensively cater to the diverse requirements of new energy buses, light trucks, heavy trucks, tractors, and sanitation vehicles.



### Coaxial Electric Drive System

Designed for pure electric buses, this system integrates the motor and drive axle into one unit. The motor is arranged coaxially with the axle housing, creating a more compact structure and a highly concentrated power system, which optimizes the chassis layout. It adopts an integrated structure to adapt to the specific conditions of electric vehicles.

- Smallest chassis footprint in the industry
- High-precision cylindrical helical gear transmission



### Parallel-Axis Electric Drive System

The motor and reducer are mounted on the drive axle, with the motor positioned parallel to the axle housing. Utilizing cylindrical gear transmission for a high gear ratio, the integrated design removes unnecessary transmission components, resulting in a more compact structure and increased transmission efficiency.

- Achieved mass deployment
- Integrated multi-speed, multi-motor system



### Distributed Electric Drive System

The dual motor system using the wheel-side reducer features a short transmission chain and lightweight design for high transmission efficiency. The integrated design conserves chassis space and allows the battery to be located underneath. Wheel-side vectoring improves handling and maneuverability.

- Low-floor design, extra-wide aisle
- 20% lighter than direct drive system

**ELECTRIC AXLE CATALOG****Coaxial Electric Drive System**

Model	Applicable models	Rated axle load capacity	Motor power	Max. output torque
6PE	5 m - 6 m bus; minibus	3500 kg	60/130 kW	5700 N.m
8PE	6 m - 7.2 m bus	5500 kg	90/160 kW	7285 N.m
31PE	8 m - 8.5 m bus	8500 kg	80/150 kW	13000 N.m

**Parallel-Axis Electric Drive System**

Model	Applicable models	Rated axle load capacity	Motor parameters	Max. output torque
Z0024AETS	3.5 T - 4.5 T truck; 6 m bus	2500 kg	60/110 kW; 150/350 N.m	4200 N.m
Z0035AETS	4.5 T - 6.0 T truck; 6 m bus	3500 kg	60/120 kW; 145/335 N.m	5300 N.m
30AE	light bus; miniature truck	3000-3500 kg	60/120 kW; 160/350 N.m	4433 N.m
60AE	7m road vehicle; power light truck	6000 kg	80/160 kW; 235/450 N.m	7412 N.m
85AE	8 m bus/road vehicle	6000-8500 kg	80/160 kW; 200/450 N.m	9214 N.m
95AE	9 m road vehicle; 10.5 m bus; 11 m road vehicle	9500 kg	200/320 kW; 350/750 N.m	14415 N.m
100AE	49 T/80 T tractor; 38 T/45 T mixer and 32 T sanitation vehicle	10000-13000 kg	200/320 kW; 350/750 N.m	41400 N.m
Z00004AETS	4x2/6x4 tractor; 18 T municipal vehicle	13000 kg	125/250 kW; 350/800 N.m	41690 N.m
A5PE ( front axle steering )	4.5 T - 6.0 T truck; 5 m - 6 m bus	2700 kg	60/115 kW; 135/350 N.m	5400 N.m

**Distributed Electric Drive System**

Model	Applicable models	Rated axle load capacity	Motor max. power	Max. output torque
F058AE	Tourist bus, light-duty truck	5000 kg	2x74 kW	2x4060 N.m
K0011AE	Virtual rail metros with rubber-tire	9000 kg	2x90 kW	2x6142 N.m
100041C	8 m - 9 m bus	9000 kg	2x120 kW	2x7020 N.m
N0012AE	10.5 m - 18 m bus	13000 kg	2x160 kW	2x10776 N.m
P0012AE	Airport shuttle bus	14000 kg	2x160 kW	2x10776 N.m
N0005AE	4x2/6x2/6x4 tractor, 4x2/8x4/6x2 truck	13000 kg	2x180 kW	2x25000 N.m

# COAXIAL ELECTRIC DRIVE SYSTEM



Highly-integrated transmission system; weight reduced by over **100 kg**; passenger capacity increased by over **30%**



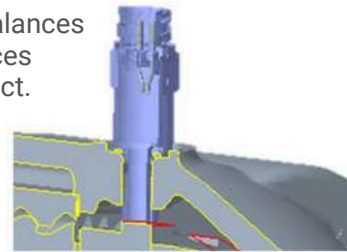
Cabin noise under **70 dB**; enhanced driving comfort



**100,000 km** maintenance intervals; reduced lifecycle costs

**100%** reverse torque; energy consumption reduced by 15%; range extended significantly

Symmetrical layout balances unsprung mass, reduces suspension load impact.



Main reducer oil temp monitoring; gear speed monitoring (optional)

## Solution Features

- **Safer:** features IP68 protection, active gear speed monitoring, real-time monitoring of main reducer oil and brake disc temperatures, and friction plate wear alarms for enhanced safety.
- **Lighter:** coaxial integration of the motor and axle housing leads the industry in integration technology, resulting in the smallest chassis footprint and lightweight weight for an electric drive axle.
- **Quieter:** high-precision helical cylindrical gears ensure the reducer is lightweight, highly efficient, and operates with low noise and long lifespan.

## 6PE



Motor	Voltage	360/540 V
	Rated/peak power	60/130 kW
	Rated/peak torque	145/350 N.m
	Rated/peak speed	4000/12000 rpm
System	Maximum output torque	5700 N.m
	Rated axle load capacity	3500 kg
	Gear ratio	16.5

- Applicable models: 4.5 T logistics vehicle, 5 m - 6 m bus/minibus

## 8PE



Item	Parameters	City bus	Intercity bus
Motor	Voltage	540 VDC	540 VDC
	Rated/peak power	90/160 kW	60/140 kW
	Rated/peak torque	200/500 N.m	160/360 N.m
	Rated/peak speed	4300/9000 rpm	3580/12000 rpm
System	Maximum output torque	7285 N.m	5240 N.m
	Rated axle load capacity	5500 kg	5500 kg
	Gear ratio	14.57	14.57

- Applicable models: 6 m - 7.5 m bus/coach

## 31PE



Motor	Voltage	540 VDC
	Rated/peak power	80/150 kW
	Rated/peak torque	230/650 N.m
	Rated/peak speed	3400/10000 rpm
System	Maximum output torque	13000 N.m
	Rated axle load capacity	8500 kg
	Gear ratio	19.89

- Applicable models: 8 m - 8.5 m bus



# PARALLEL-AXIS ELECTRIC DRIVE SYSTEM

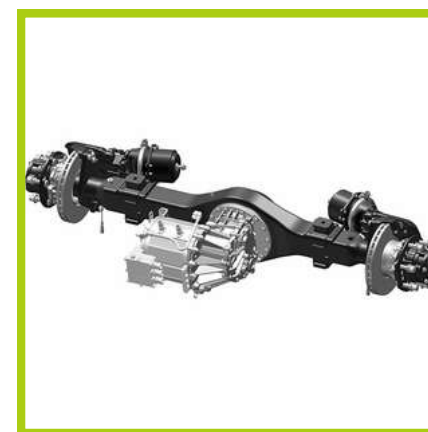
## 30AE



Motor	Rated/peak power	60/120 kW
	Rated/peak torque	160/350 N.m
	Rated/peak speed	3580/12000 rpm
	Speed ratio	12.665
System	Maximum output torque	4433 N.m
	Total weight	205 kg
	Rated axle load capacity	3000-3500 kg

- Applicable models: light bus; miniature truck

## 60AE



Motor	Rated/peak power	80/160 kW
	Rated/peak torque	235/450 N.m
	Rated/peak speed	4100/12000 rpm
	Speed ratio	16.473
System	Maximum output torque	7412 N.m
	Total weight	300 kg
	Rated axle load capacity	6000 kg

- Applicable models: 7m road vehicle; power light truck

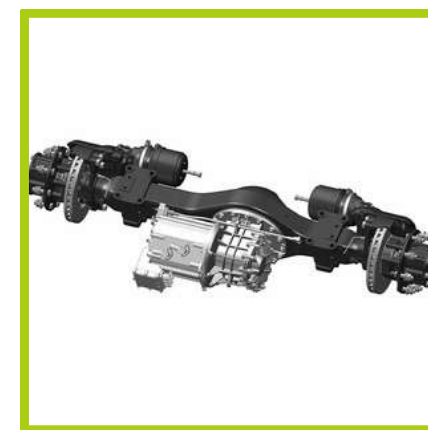
## Z0035AETS



Motor	Rated/peak power	60/120 kW
	Rated/peak torque	145/335 N.m
	Maximum speed	12000 rpm
Gearbox	Gear ratio	16.6
System	Maximum output torque	5300 N.m
	Maximum output speed	723 rpm
	Total weight	270 kg
	Rated axle load capacity	3500 kg

- Applicable models: 4.5 T - 6 T logistics vehicle, 6 m bus

## 85AE



Motor	Rated/peak power	80/160 kW
	Rated/peak torque	200/450 N.m
	Rated/peak speed	3600/12000 rpm
	Speed ratio	20.475
System	Maximum output torque	9214 N.m
	Total weight	525 kg
	Rated axle load capacity	8500 kg

- Applicable models: 8 m bus/road vehicle

# PARALLEL-AXIS ELECTRIC DRIVE SYSTEM

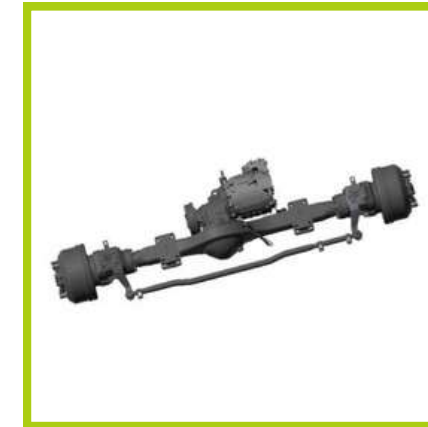
## 95AE



Motor	Rated/peak power	200/320 kW
	Rated/peak torque	350/750 N.m
	Rated/peak speed	4093/12000 rpm
	Speed ratio	19.220
System	Maximum output torque	14415 N.m
	Total weight	583 kg
	Rated axle load capacity	9500 kg

- Applicable models: 9 m road vehicle; 10.5 m bus; 11 m road vehicle

## A5PE (front axle steering)



Motor	Voltage	360/540 V
	Rated/peak power	60/115 kW
	Rated/peak torque	135/350 N.m
	Rated/peak speed	4244/12000 rpm
System	Maximum output torque	5400 N.m
	Rated axle load capacity	2700 kg
	Gear ratio	16.5

- Applicable models: 4.5 T - 6.0 T truck; 5 m - 6 m bus

## 100AE



Motor	Rated/peak power	200/320 kW
	Rated/peak torque	350/750 N.m
	Rated/peak speed	4093/12000 rpm
Gearbox	Gear ratio	Gear 1: 55.20 Gear 2: 17.24
System	Maximum output torque	41400 N.m
	Total weight	887 kg
	Rated axle load capacity	10000 kg

- Applicable models: 49 T/80 T tractor; 38 T/45 T mixer and 32 T sanitation vehicle

## Z0004AETS



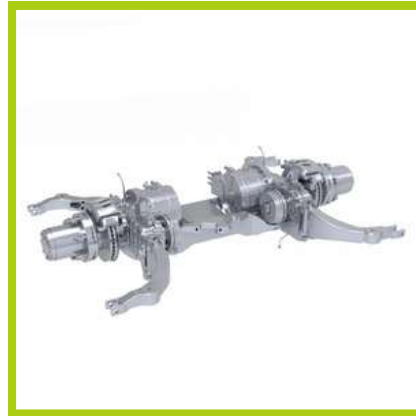
Motor	Rated/peak power	125/250 kW
	Rated/peak torque	350/800 N.m
	Maximum speed	9000 rpm
Gearbox	Gear	1      2
	Gear ratio	13.203      4.367
System	Wheel-side gear ratio	3.947
	Maximum output torque	41690 N.m
	Maximum output speed	522 rpm
	Total weight	1020 kg
	Rated axle load capacity	13000 kg

- Applicable models: 4x2/6x4 tractor; 18 T municipal vehicle/truck



# DISTRIBUTED ELECTRIC DRIVE SYSTEM

## F058AE



Motor	Rated voltage	540 VDC
	Rated/peak power	2x37/2x74 kW
	Rated/peak torque	2x126/2x382 N.m
	Maximum speed	10000 rpm
Gear	Gear ratio	10.63
System	Total weight	550 kg
	Rated axle load capacity	5000 kg
	Maximum output speed	940 rpm
	Brake	Hydraulic disc brake

- Applicable models: tourist bus, light-duty truck

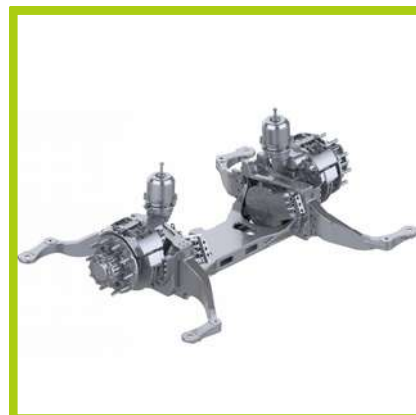
## K0011AE



Motor	Rated voltage	600 VDC
	Rated/peak power	2x55/2x90 kW
	Rated/peak torque	2x140/2x350 N.m
	Maximum speed	9500 rpm
Gear	Gear ratio	17.55
System	Total weight	950 kg
	Rated axle load capacity	5000 kg
	Maximum output speed	540 rpm
	Brake	Air disc brake

- Applicable models: virtual rail metros with rubber-tire

## 100041C



Motor	Rated voltage	540 VDC
	Rated/peak power	2x60/2x120 kW
	Rated/peak torque	2x145/2x400 N.m
	Maximum speed	9500 rpm
Gear	Gear ratio	17.55
System	Total weight	850 kg
	Rated axle load capacity	9000 kg
	Maximum output speed	540 rpm
	Brake	Air disc brake

- Applicable models: 8 m - 9 m bus

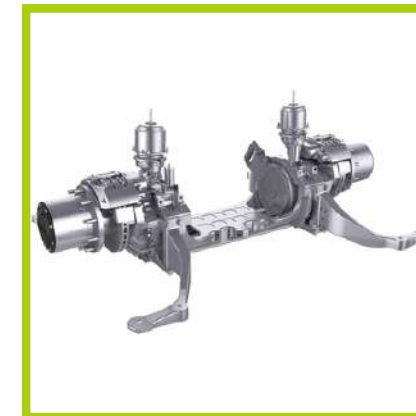
## N0012AE



Motor	Rated voltage	540 VDC
	Rated/peak power	2x80/2x160 kW
	Rated/peak torque	2x220/2x580 N.m
	Maximum speed	8000 rpm
Gear	Gear ratio	18.58
System	Total weight	1080 kg
	Rated axle load capacity	13000 kg
	Maximum output speed	430 rpm
	Brake	Disc brake

- Applicable models: 10.5 m - 18 m bus

## P0012AE



Motor	Rated voltage	540 VDC
	Rated/peak power	2x80/2x160 kW
	Rated/peak torque	2x220/2x580 N.m
	Maximum speed	8000 rpm
Gear	Gear ratio	18.58
System	Total weight	1127 kg
	Rated axle load capacity	14000 kg
	Maximum output speed	430 rpm
	Brake	Disc brake

- Applicable models: airport shuttle bus

## N0005AE



Motor	Rated voltage	540 VDC
	Rated/peak power	2x80/2x180 kW
	Rated/peak torque	2x250/2x500 N.m
	Maximum speed	9500 rpm
Gear	Gear ratio	49.4/15.3
System	Total weight	1100 kg
	Rated axle load capacity	13000 kg
	Maximum output speed	620 rpm
	Brake	Air disc/drum brake

- Applicable models: 4x2/6x2/6x4 tractor, 4x2/8x4/6x2 truck