



CATALOG ►

Core Vehicle Control Technology Co.,LTD



► ABOUT CVCT

COMPANY INSTRUCTION

Nanjing CVCT is a joint venture between Nanjing CHTC and Korea VCtech, focusing on the research and development, production and sales of new nergy commercial vehicle drive systems. We developed and produced Electrification platform for 2.5-4.5T light logistics vehicles, 18-49T medium and heavy trucks, 50-150T mining machinery, 6-12m buses and various airport shuttles, loaders, excavators, agricultural machinery and High-speed motorcycles and others.



中国机械工业集团有限公司 (SINOMACH)
China National Machinery Industry Corporation Ltd.

国有重要骨干企业/
Key State-owned Backbone Enterprise

世界500强/
Fortune Global 500 Enterprise

装备制造业和现代制造服务业/
Equipment Manufacturing Industry and Modern Manufacturing Service Industry

市场遍布全球170多个国家和地区/
The market covers more than 170 countries and regions around the world

中国恒天集团有限公司 (CHTC)
China Hi-Tech Group Corporation

大型中央企业/
Central Government-led Enterprises

国务院国资委把汽车核定为主业的四家大型央企之一
One of the four large central enterprises which are approved automobile industry as the main business by SASAC of the State Council

2017年6月29日
恒天集团整体并入中国机械工业集团公司
June 29, 2017
CHTC is incorporated into SINOMACH as a whole

OUR ADVANTAGES

 **High standards,
Globalization**

The products have successively passed 16949 system certification, India, South Korea, and EU standard certification, and are familiar with the regulations and standards of various countries.

 **Rich application
experience**

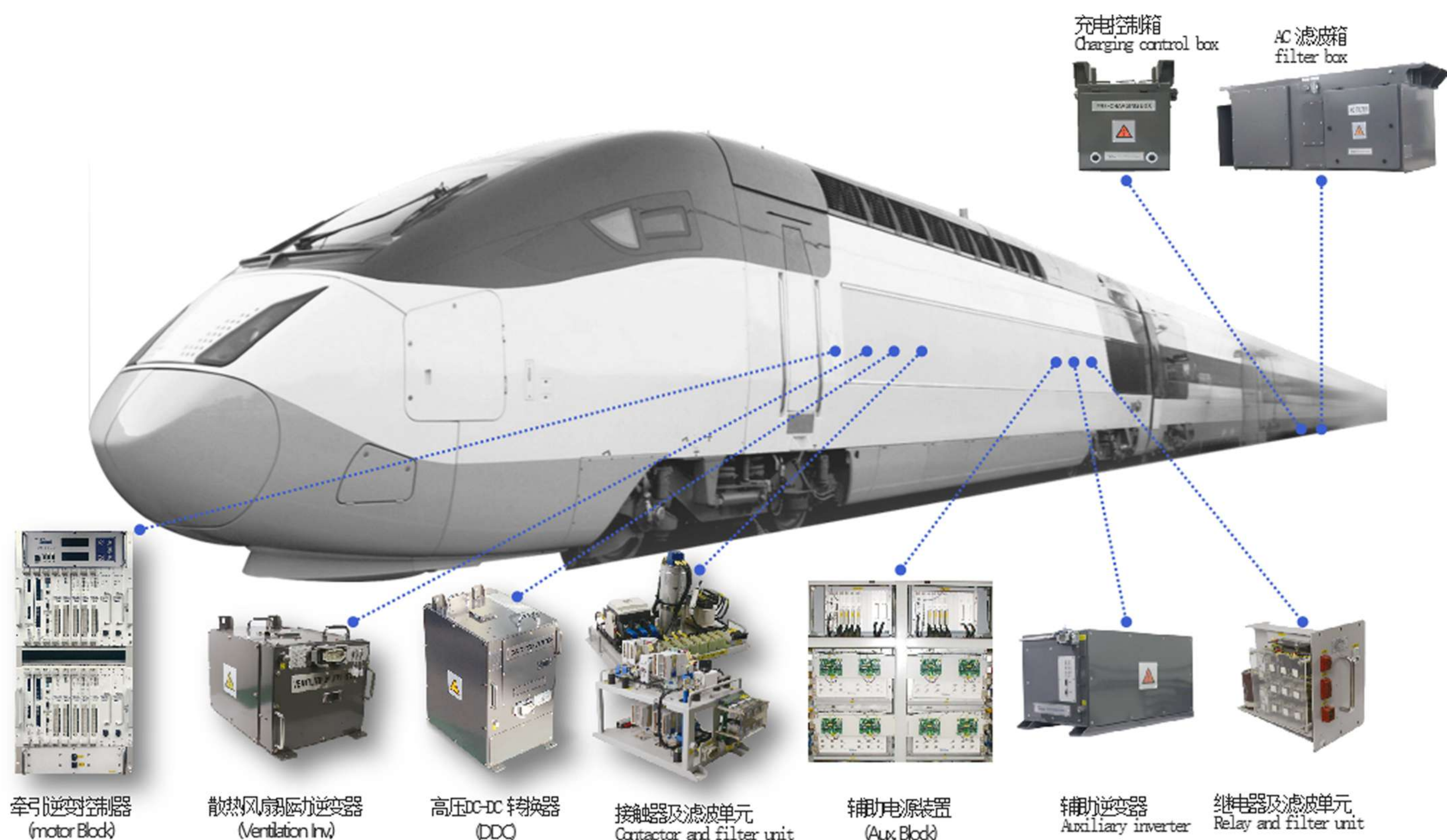
The R&D and management team have nearly 20 years of experience in the new energy vehicle industry, with a cumulative installed volume of more than 200,000 units.

 **Strong technical
accumulation**



**Crear Customer
Value**

VCTECH TECHNOLOGY



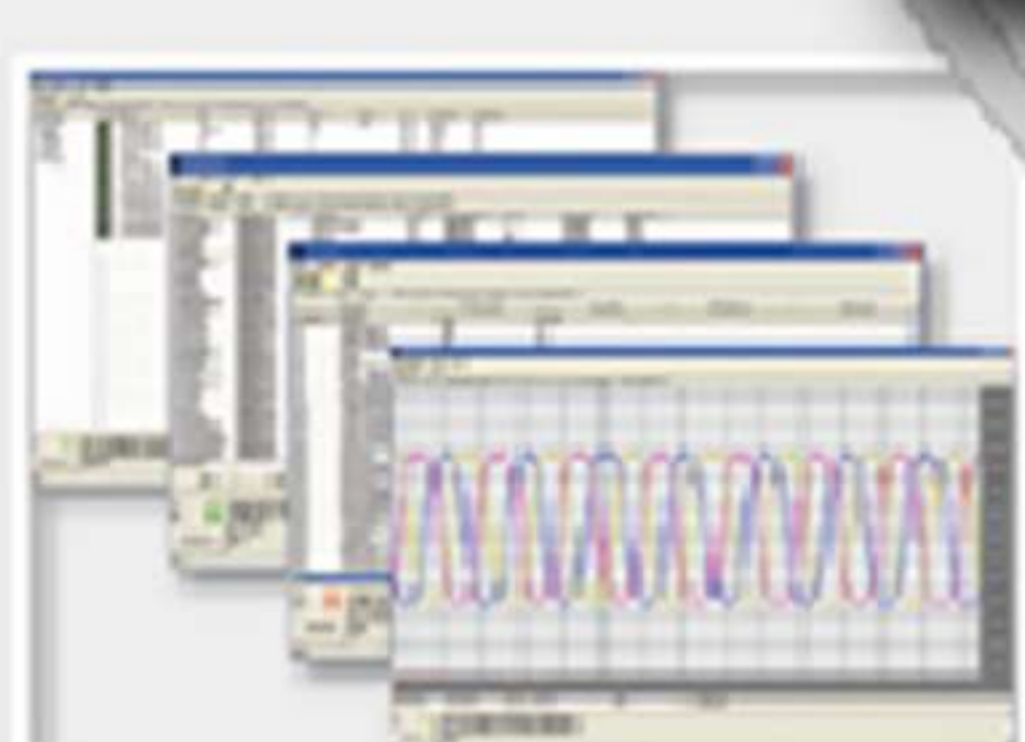
TOTAL POWER ELECTRONICS

Motor And Engergy Control Technology

- AC Motor Control
- DC Motor Control
- PMSM Motor Control
- Static Variable Frequency Control



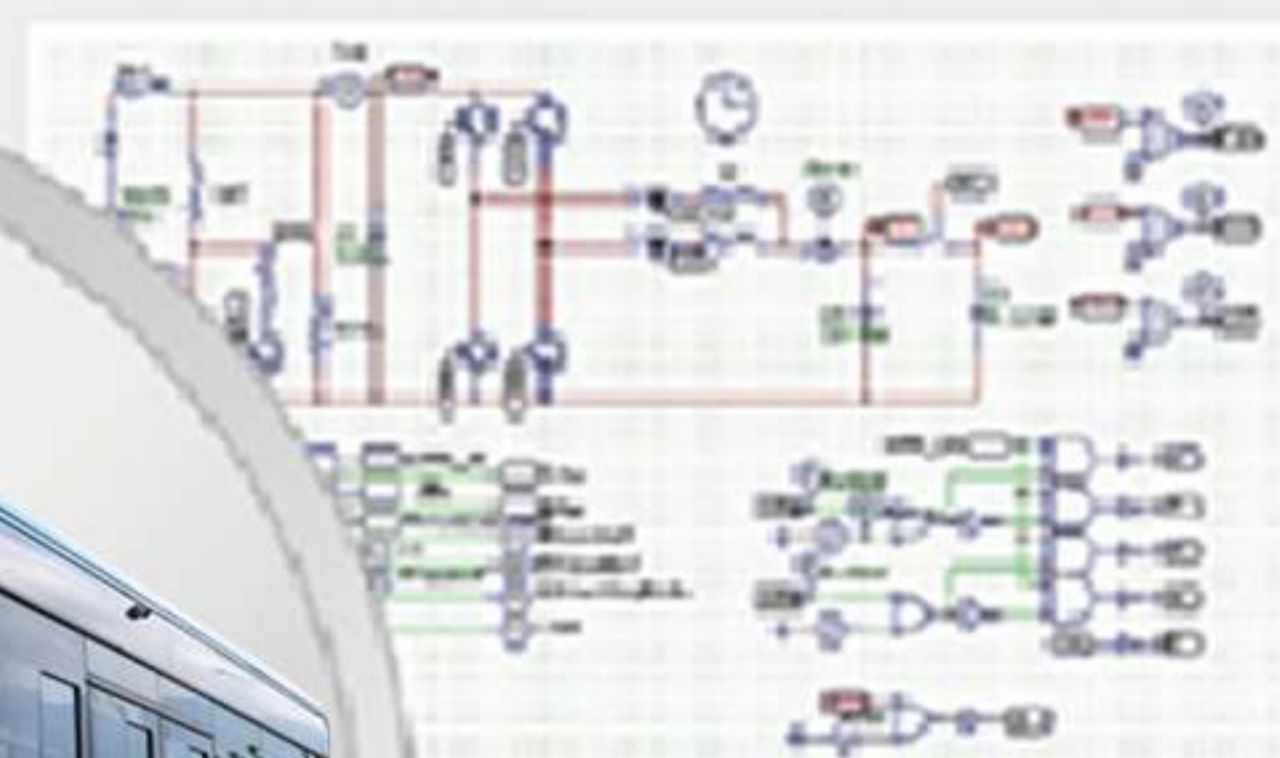
Software/Hardware Development Technology



- Electronic & Electrical Loop Design
- Communication Software Technology
- Software Engineering Technology

System Technology

- System Design Technology
- Loop Simulation And Analysis Technology
- Power Electronics Design Technology
- System Engineering

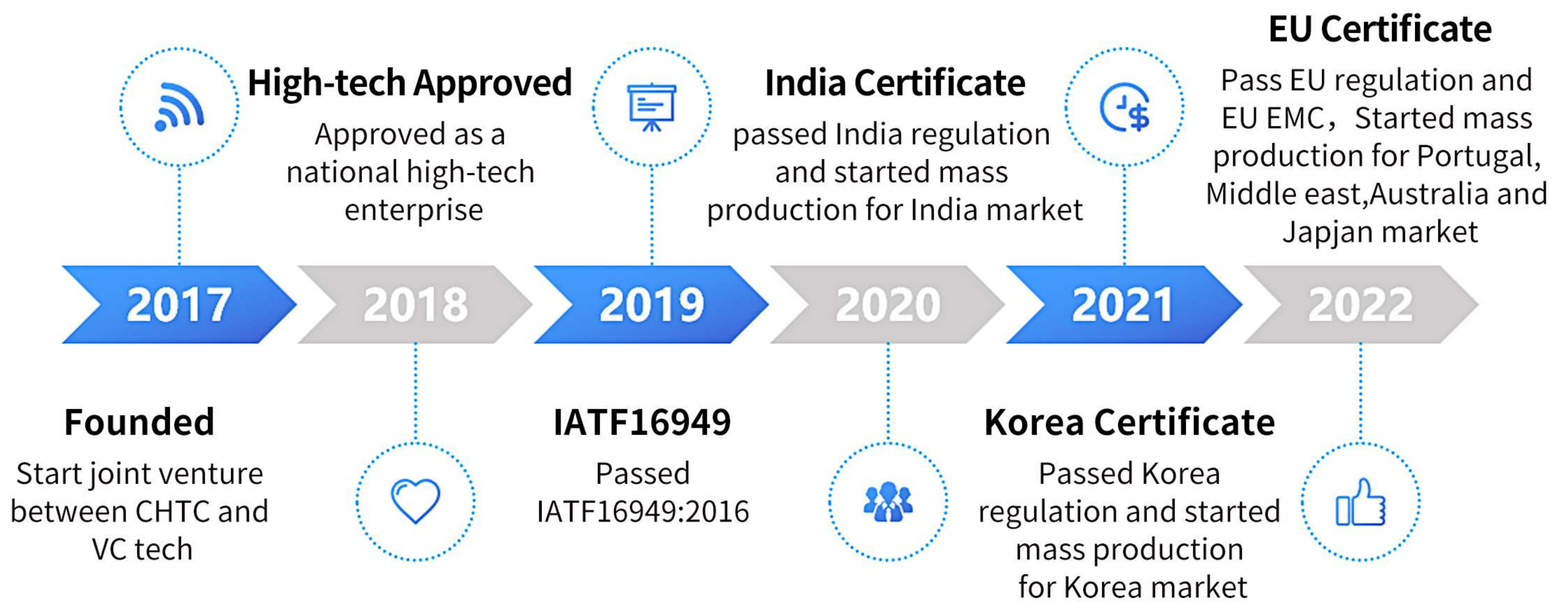


Structure Design Technology



- Thermal Analysis Technology
- PCB CAD Technology
- Structure Analysis Technology
- CATIA 3D CAD Technology

DEVELOPMENT



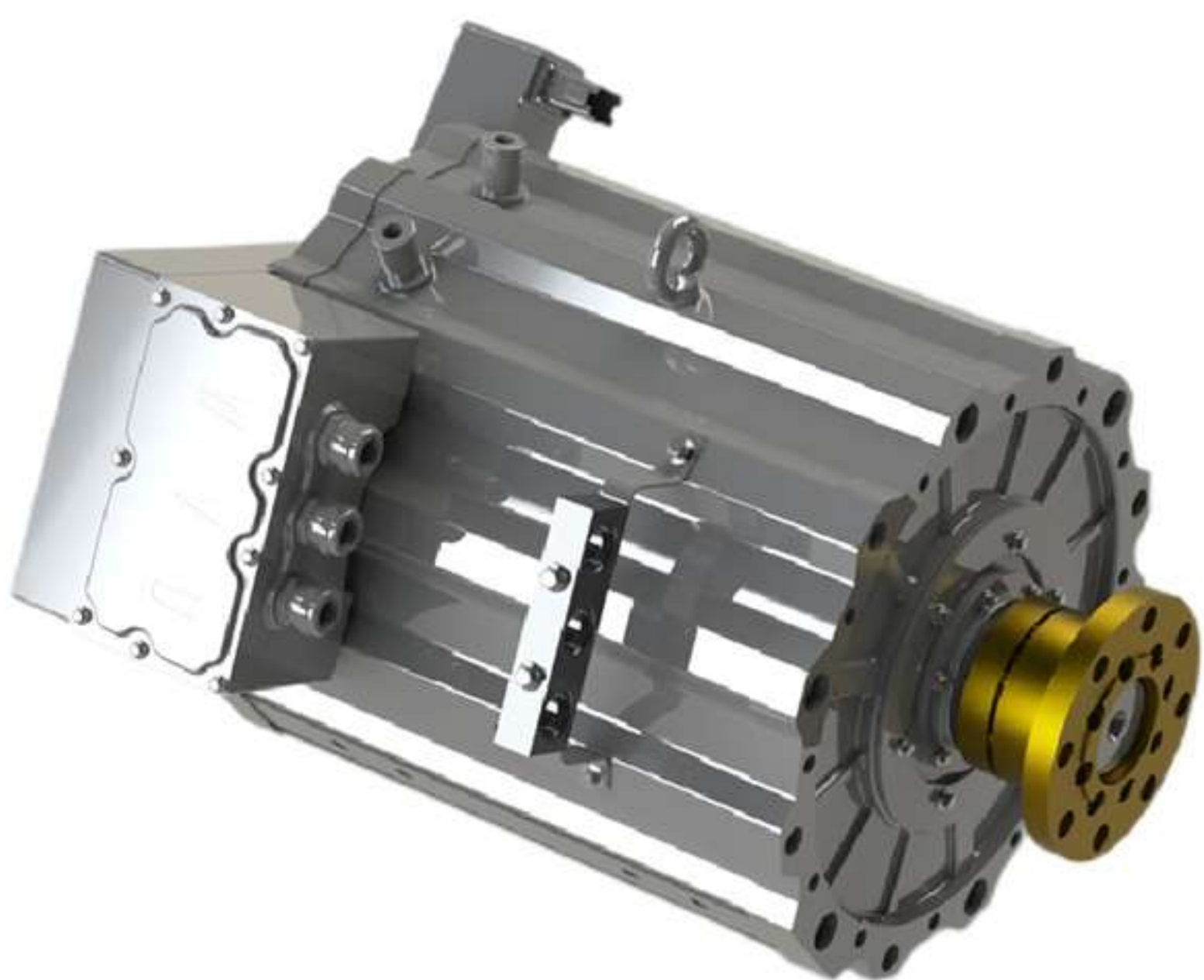
FACTORY SHOW



2.5MICRO LOGISTICS VEHICLE SYSTEM SOLUTION



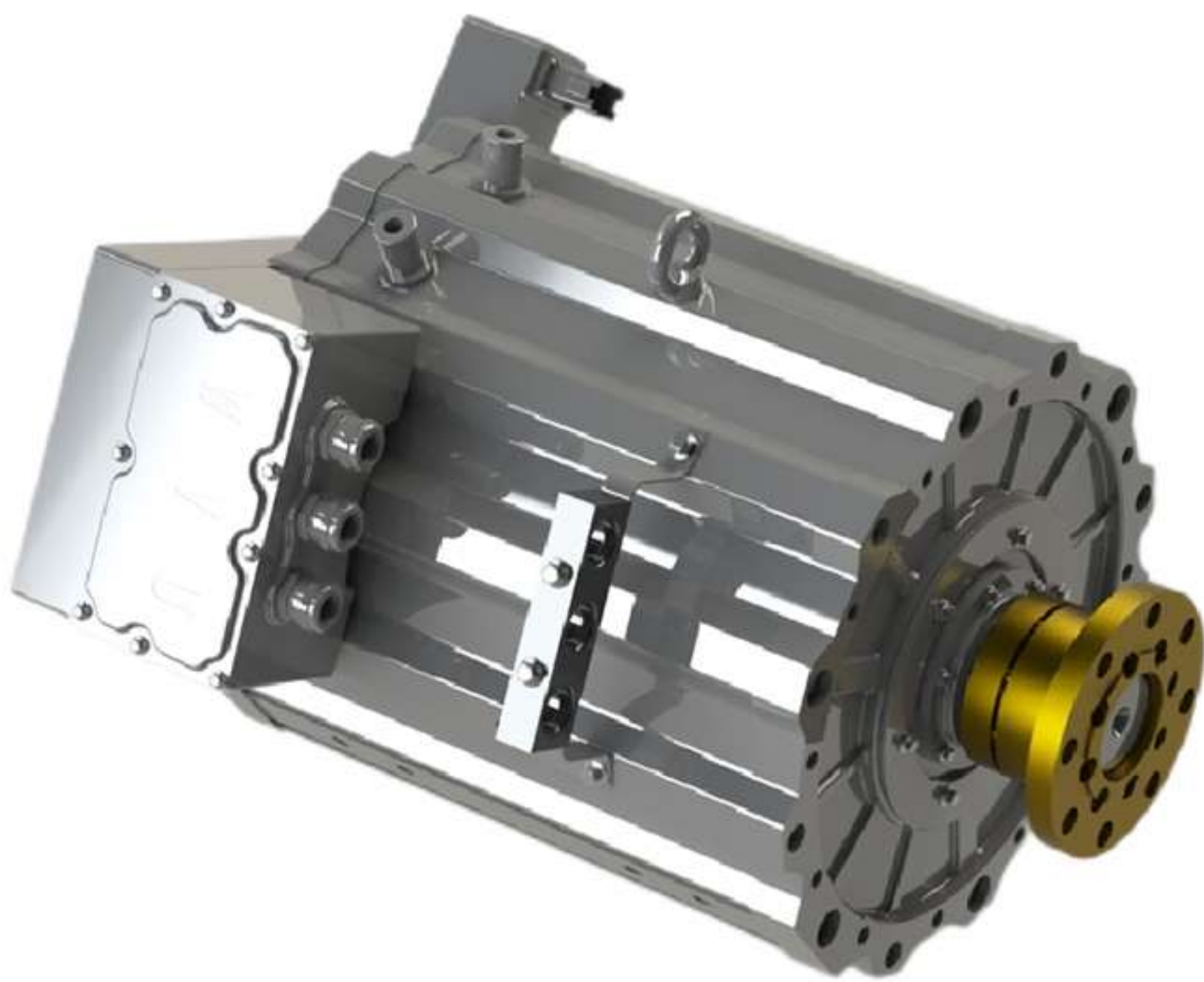
S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	60/80
2	Rated Power (Kw)	30/40
3	Max Output Torque (N.m)	200/250
4	Max Output Rotate Speed (rpm)	9000
5	Ratio	/
6	Evelope Size	306/326×260×300
Advantages		
8	Compact Structure, Simple Control	High Reliability, High Power Density, Excellent NVH Performance
9	High Cost Performance	Light Weight, Simple Structure
10	High Efficiency	Direct Drive Motor, High Efficiency, Motor Efficiency Reaches 98%



6-7M BUS,4.5T LIGHT TRUCK DIRECT DRIVE SYSTEM SOLUTION

S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	120
2	Rated Power (Kw)	60
3	Max Output Torque (N.m)	1200
4	Max Output Rotate Speed (rpm)	4000
5	Ratio	/
6	Evelope Size	492×465×503
Advantages		
8	High Reliability	Simple Drive System And High Reliability
9	Excellent NVH Performance	No Influence Of Retarder Tooth Side Noise, Excellent NVH Performance
10	High Efficiency	Direct Drive Motor, High Efficiency, Motor Efficiency Reaches 98%

8-8.5M BUS DIRECT DRIVE SYSTEM SOLUTION



S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	160
2	Rated Power (Kw)	80
3	Max Output Torque (N.m)	1700/2100
4	Max Output Rotate Speed (rpm)	4000/3500
5	Ratio	/
6	Evelope Size	602×465×503
Advantages		
8	High Reliability	Simple Drive System And High Reliability
9	Excellent NVH Performance	No Influence Of Retarder Tooth Side Noise, Excellent NVH Performance
10	High Efficiency	Direct Drive Motor, High Efficiency, Motor Efficiency Reaches 98%



10-11M BUS DIRECT DRIVE SYSTEM SOLUTION

S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	200
2	Rated Power (Kw)	100
3	Max Output Torque (N.m)	2500
4	Max Output Rotate Speed (rpm)	3500
5	Ratio	/
6	Evelope Size	598×520×537
Advantages		
8	High Reliability	Simple Drive System And High Reliability
9	Excellent NVH Performance	No Influence Of Retarder Tooth Side Noise, Excellent NVH Performance
10	High Efficiency	Direct Drive Motor, High Efficiency, Motor Efficiency Reaches 98%

11-12M BUS DIRECT DRIVE SYSTEM SOLUTION



S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	240
2	Rated Power (Kw)	120
3	Max Output Torque (N.m)	3000
4	Max Output Rotate Speed (rpm)	3200
5	Ratio	/
6	Evelope Size	598×520×537
Advantages		
8	High Reliability	Simple Drive System And High Reliability
9	Excellent NVH Performance	No Influence Of Retarder Tooth Side Noise, Excellent NVH Performance
10	High Efficiency	Direct Drive Motor, High Efficiency, Motor Efficiency Reaches 98%



12M BUS DIRECT DRIVE SYSTEM SOLUTION

S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	350
2	Rated Power (Kw)	180
3	Max Output Torque (N.m)	3500
4	Max Output Rotate Speed (rpm)	3000
5	Ratio	/
6	Evelope Size	598×520×537
Advantages		
8	High Reliability	Simple Drive System And High Reliability
9	Excellent NVH Performance	No Influence Of Retarder Tooth Side Noise, Excellent NVH Performance
10	High Efficiency	Direct Drive Motor, High Efficiency, Motor Efficiency Reaches 98%

3.5T-4.5T LIGHT TRUCK SYSTEM SOLUTIONS



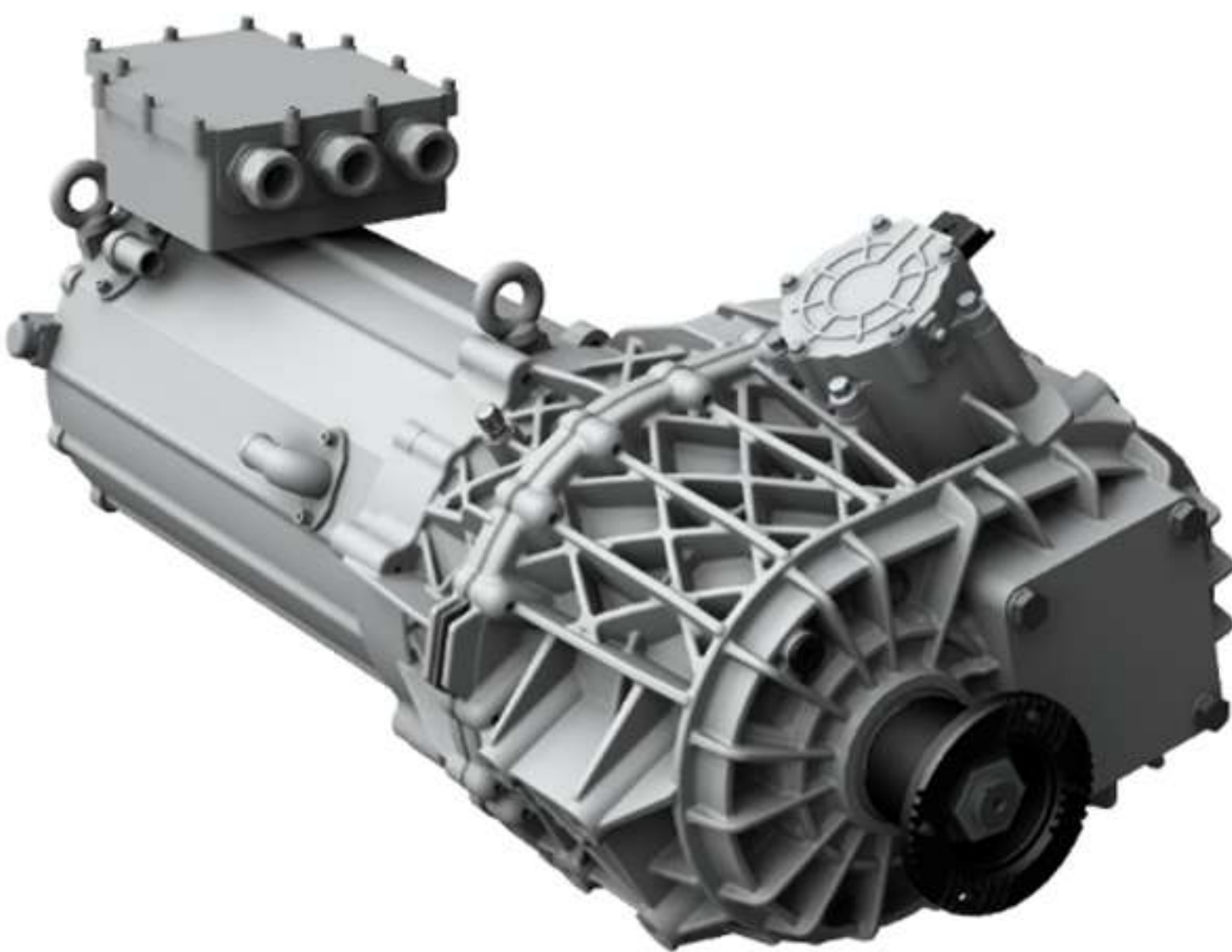
S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	120/160
2	Rated Power (Kw)	60/80
3	Max Output Torque (N.m)	1288/1656
4	Max Output Rotate Speed (rpm)	3261
5	Ratio	3.68
6	Evelope Size	536/576×381×361
Advantages		
8	Compact Structure, Simple Control	Single Reduction Gear Set, Matched With High-speed Motor, Small Structure Size, No Gear Shifting Contro
9	High Cost Performance	High-speed Solution, Better System Price
10	Light Weight	Single Reduction Gear Set + High-speed Motor



2.5-7.5T LIGHT TRUCK/6-8M BUS DIRECT DRIVE SYSTEM SOLUTION

S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	165
2	Rated Power (Kw)	80
3	Max Output Torque (N.m)	1550
4	Max Output Rotate Speed (rpm)	3532
5	Ratio	3.68
6	Evelope Size	590×428×340
Advantages		
8	Compact Structure, Simple Control	Single Reduction Gear Set, Matched With High-speed Motor, Small Structural Size, No Shift Control.
9	Low Cost	High-speed Solution, Light Weight & Simple Structure. Significantly Reduce The Cost Of The Motor.
10	High Efficiency	Single Reduction Gear Set, High Efficiency, Comprehensive Efficiency Reaches 95%

7.5-18T LIGHT TRUCK /8-12M BUS DIRECT DRIVE SYSTEM SOLUTION



S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	180
2	Rated Power (Kw)	120
3	Max Output Torque (N.m)	4540
4	Max Output Rotate Speed (rpm)	3797
5	Ratio	10.09/3.16
6	Evelope Size	868×383×412
Advantages		
8	Power Enhancement, Integrated Electronic Shifting	Adding a power gear can adapt to greater power demand; The shifting motor integrates control, motor, and deceleration mechanism; There is no separate deceleration mechanism inside the box, so shifting is fast and the size is small .
9	Low Cost	High-speed Solution, Light Weight, Reduced Motor Requirements, And Significantly Reduced Motor Costs
10	Energy-saving And Efficient	Two-speed design, different gears can be switched under different working conditions, and the motor efficiency MAP can be adapted to improve overall efficiency and increase cruising range.



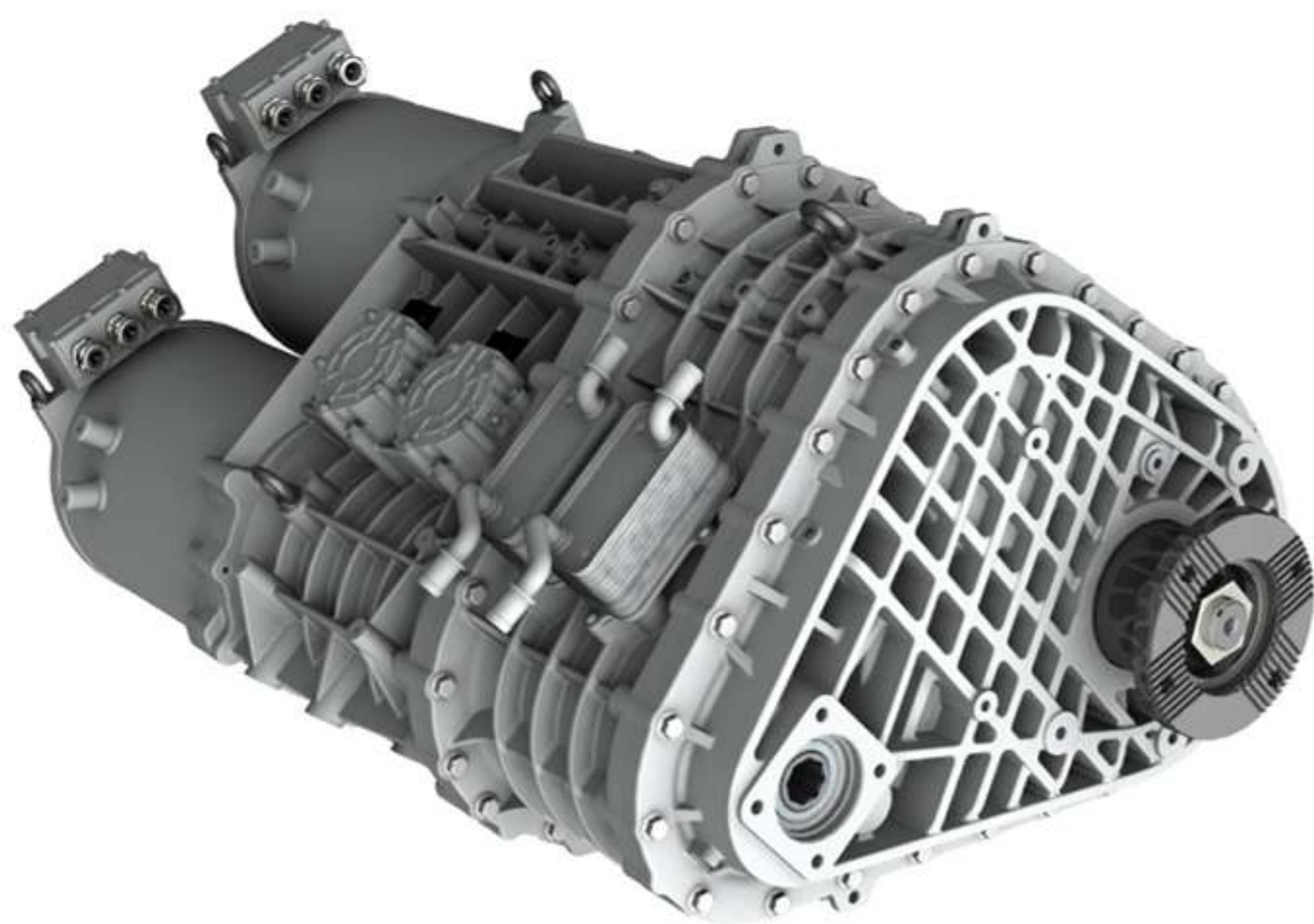
STANDARD LOADING 4X2、 6X4、 8X4 HEAVY TRUCK SYSTEM SOLUTIONS

S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	405
2	Rated Power (Kw)	260
3	Max Output Torque (N.m)	19525
4	Max Output Rotate Speed (rpm)	3000
5	Ratio	7.93/3.53/1.74/1
6	Evelope Size	1131×428×340
Advantages		
8	Easy installation and high reliability	
9	Excellent Control	Adaptive gear selection and clutch control, digital intelligent electronically controlled gear shifting system
10	High Power And High Efficiency	

18-49T HEAVY TRUCK DRIVE SYSTEM SOLUTIONS



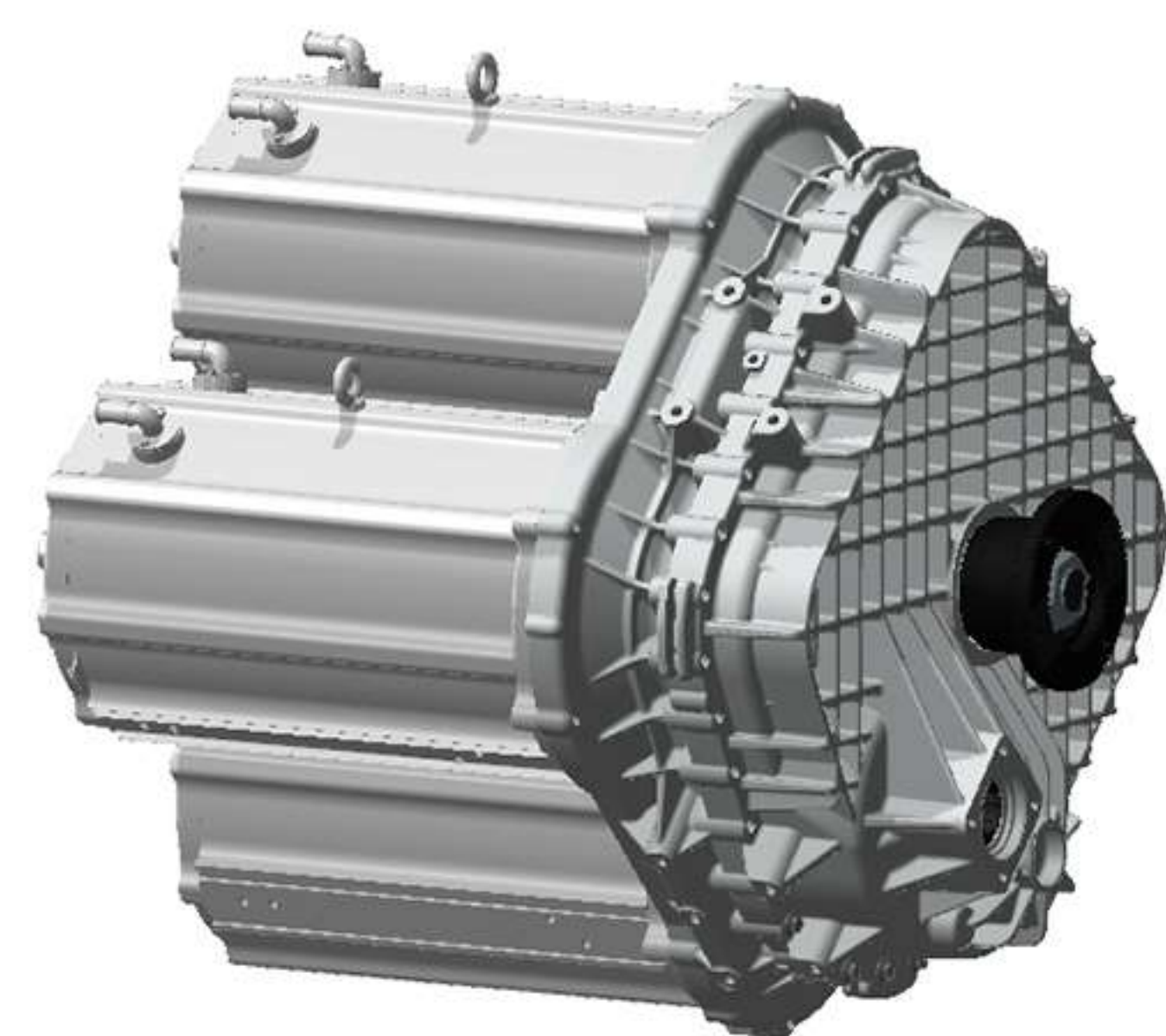
S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	450
2	Rated Power (Kw)	250
3	Max Output Torque (N.m)	19860
4	Max Output Rotate Speed (rpm)	3077
5	Ratio	16.55/10.19/6.28/3.90
6	Evelope Size	1248×428×454
Advantages		
8	Strong power, F ast and stable shifting	Adding a power gear can adapt to greater power demand; The shifting motor integrates control, motor, and deceleration mechanism; There is no separate deceleration mechanism inside the box, so shifting is fast and the size is small .
9	Low Cost	High-speed Solution, Light Weight, Reduced Motor Requirements, And Significantly Reduced Motor Costs
10	Energy-saving And Efficient	Two-speed design, different gears can be switched under different working conditions, and the motor efficiency MAP can be adapted to improve overall efficiency and increase cruising range.



50T HEAVY TRUCK DRIVE SYSTEM SOLUTIONS

S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	265×2
2	Rated Power (Kw)	180×2
3	Max Output Torque (N.m)	27000
4	Max Output Rotate Speed (rpm)	3027
5	Ratio	27.293/14.342/7.59/3.964
6	Evelope Size	1119×609×699
Advantages		
8	Dual-power And Multi-power Mode	Based on the four-speed design, the dual-motor solution is optimized. The motor output power increases while reducing performance requirements; Through parallel power coupling, each motor can output power independently or be coupled with each other
9	Low Cost	High-speed solution, light weight, dual-motor further reducing motor requirements and significantly reducing motor costs. The reduction in single motor power reduces control hardware requirements and reduces controller costs.
10	Active Lubrication	Using electronic oil pump for active lubrication, the lubrication capacity is controllable, water cooling fan heats up, and the structure is safer.

150T MINING TRUCK DRIVE SYSTEM SOLUTIONS



S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	250×4
2	Rated Power (Kw)	180×4
3	Max Output Torque (N.m)	24182
4	Max Output Rotate Speed (rpm)	2547
5	Ratio	4.381
6	Evelope Size	872×720×714
Advantages		
8	Multi-motor Single Reduction	On the premise of ensuring power output, the four-motor structure greatly reduces the motor performance requirements. The single reduction ensures that there is no gear shifting on the slope, which is consistent with the mining truck usage environment.
9	Low Cost	High-speed solution, light weight, multiple motors, reduced requirements on motors, controllers, and reducers, thus reducing costs.
10	Compact Structure	Single reduction scheme, the reducer has a simple structure, short length and compact structure



HIGH-SPEED ELECTRIC MOTORCYCLE DRIVE SYSTEM SOLUTION

S. NO.	Parameters	Requirements
Power System Parameters		
1	Max Power (Kw)	10KW
2	Rated Power (Kw)	4KW
3	Max Output Torque (N.m)	57Nm
4	Max Output Rotate Speed (rpm)	3309rpm
5	Ratio	4.533
6	Evelope Size	255×200×202
Advantages		
8	Highly Integrated And Simple Control	Motor, electronic control, and retarder are three-in-one, highly integrated, small in structure, strong in adaptability, single-reduction structure, simple in control, and only need to control the motor torque and speed.
9	Low Cost	single reduction structure, simple control, only need to control the motor torque and speed
10	High Efficiency	High degree of integration, structural optimization efficiency can reach more than 90%, improving mileages

MOTOR CONTROL UNIT INSTRUCTION



OPTION

80KW. Single 600A 1GBT module
100KW. Single 800A 1GBT module

APPLICATION

3.5T/4.5T Light Truck,
6-12M Bus



OPTION

100KW. Single 800A 1GBT module
150Kw. Double 600A 1GBT module

APPLICATION

4.5T Light Truck, 6-12M Bus
Standard loading 4X2、 6X4、 8X4 Heavy Truck,
18-50T Heavy Truck,150T Mining Truck

3 IN 1 CONTROLLER INSTRUCTION



PARAMETER

OBC: 3.3KW-6.6KW optional
DCDC: 1.5/3KW
Dpu: optional integration

APPLICATION

2.5 Micro Logistics Vehicle

4 IN 1 CONTROLLER INSTRUCTION



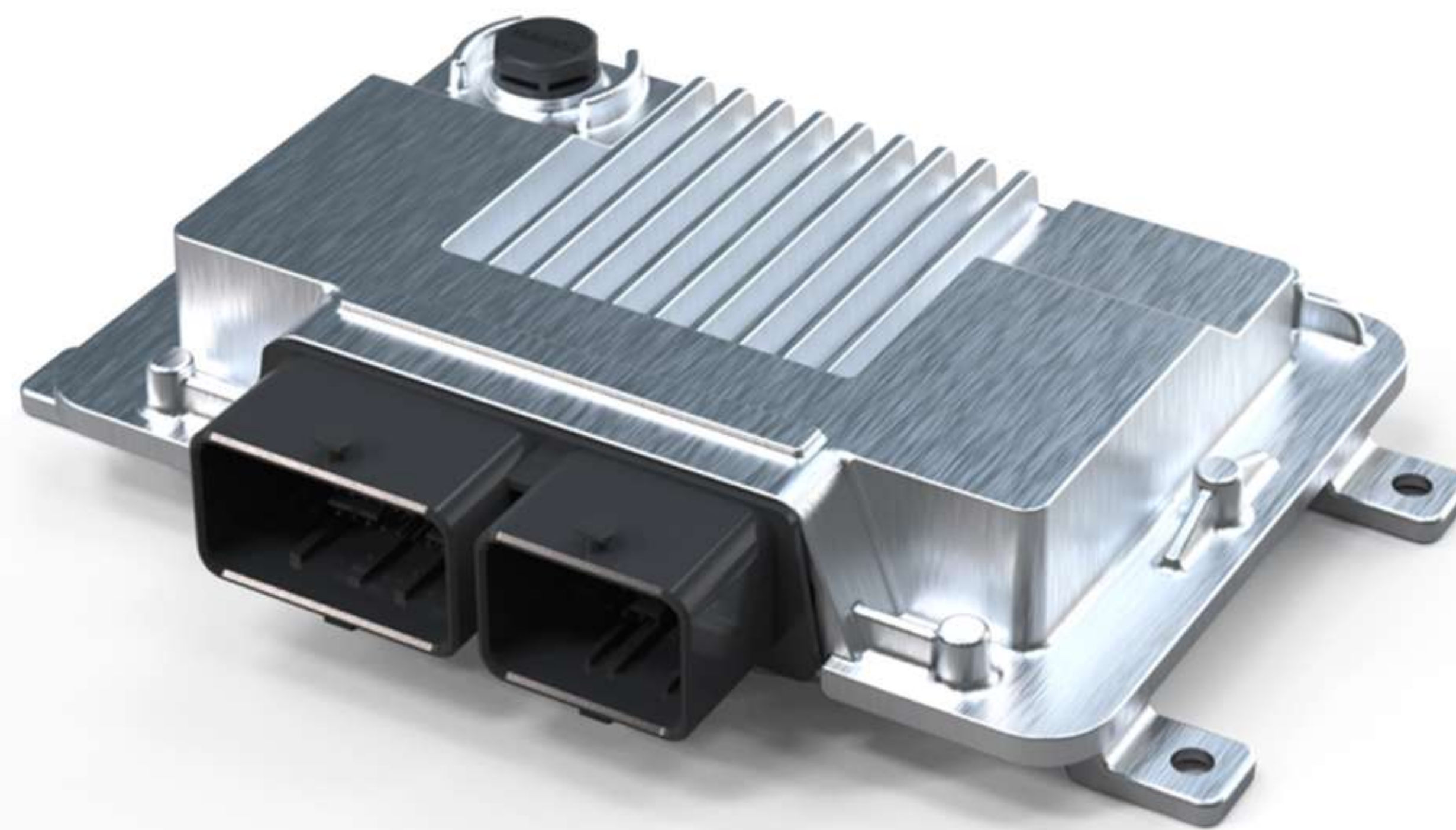
OPTION

DCAC (oil pump): 5.5KW-7.5KW/7.5KW-12KW
DCAC (air pump): 5.5KW-7.5KW
DCDC: 3KW

APPLICATION

Standard loading 4X2、 6X4、 8X4 Heavy Truck,
18-50T Heavy Truck,150T Mining Truck

VEHICLE CONTROL UNIT INSTRUCTION



HIGH TECHNOLOGY

Self-developed control algorithm, takes the optimal energy consumption of the motor as the control goal, and the power and stability as the constraints. It obtains the motor's requested torque and can independently find the optimal point of efficiency during the operation of the drive system.



STABLE CONTROL

Active damping control technology is used to eliminate torque pulsations caused by torque mutations. On the premise of satisfying power and acceleration, VCU simulates the damping effect by dynamically adjusting the rate of torque rise and fall, thereby suppressing vehicle jitter.



COORDINATE RESOURCES

The vehicle software adopts real-time control, and the sampling interval is 1ms. Reasonable bottom-level driver writing is used to reduce invalid sampling and processing, and provide more accurate support for driver intention judgment and policy analysis of upper-layer applications.



ALL-INCLUSIVE

The program is modularized to differentiate control and has strong scalability to meet the needs of different users.





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