

# **SiA**ECOSYS

## Powertrain Solution & EV Development

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*EV Your Life!*



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## Who is **SiA**ECOSYS

**TAIZHOU SIA SCIENCE AND TECHNOLOGY CO., Ltd.** (short for **SiA**ECOSYS or **SIA**), locate in Taizhou city, Zhejiang, China, work on powertrain solution & EV development business.

 [www.siaecosys.com](http://www.siaecosys.com)

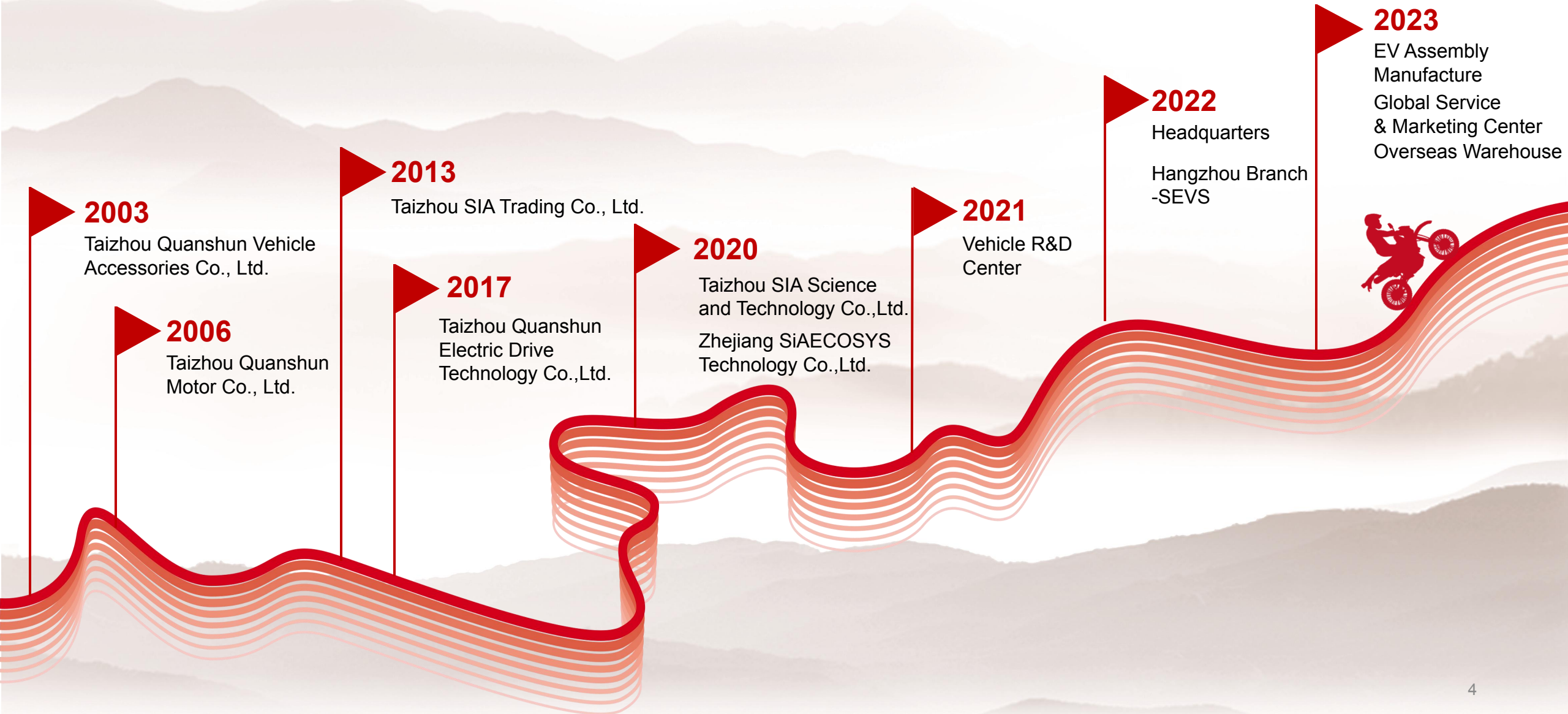
### •Powertrain Solution

As a sub-brand of QSMOTOR, SIA work on electric motor & motor kits as electric powertrain for electric 2/3 wheeler, focus on international market.

### •EV Development

Original design manufacturer in electric driving industry, offer ODM business.  
From design, prototype to mass production, offer one stop solutions!









**Headquarters (Taizhou City, China)**



**Hangzhou Branch-SEVS (Hangzhou City, China)**



# Company Introduction



2000m<sup>2</sup> ODM R&D center Locate in Yangtze Delta Region Institute of TSINGHUA University, Zhejiang





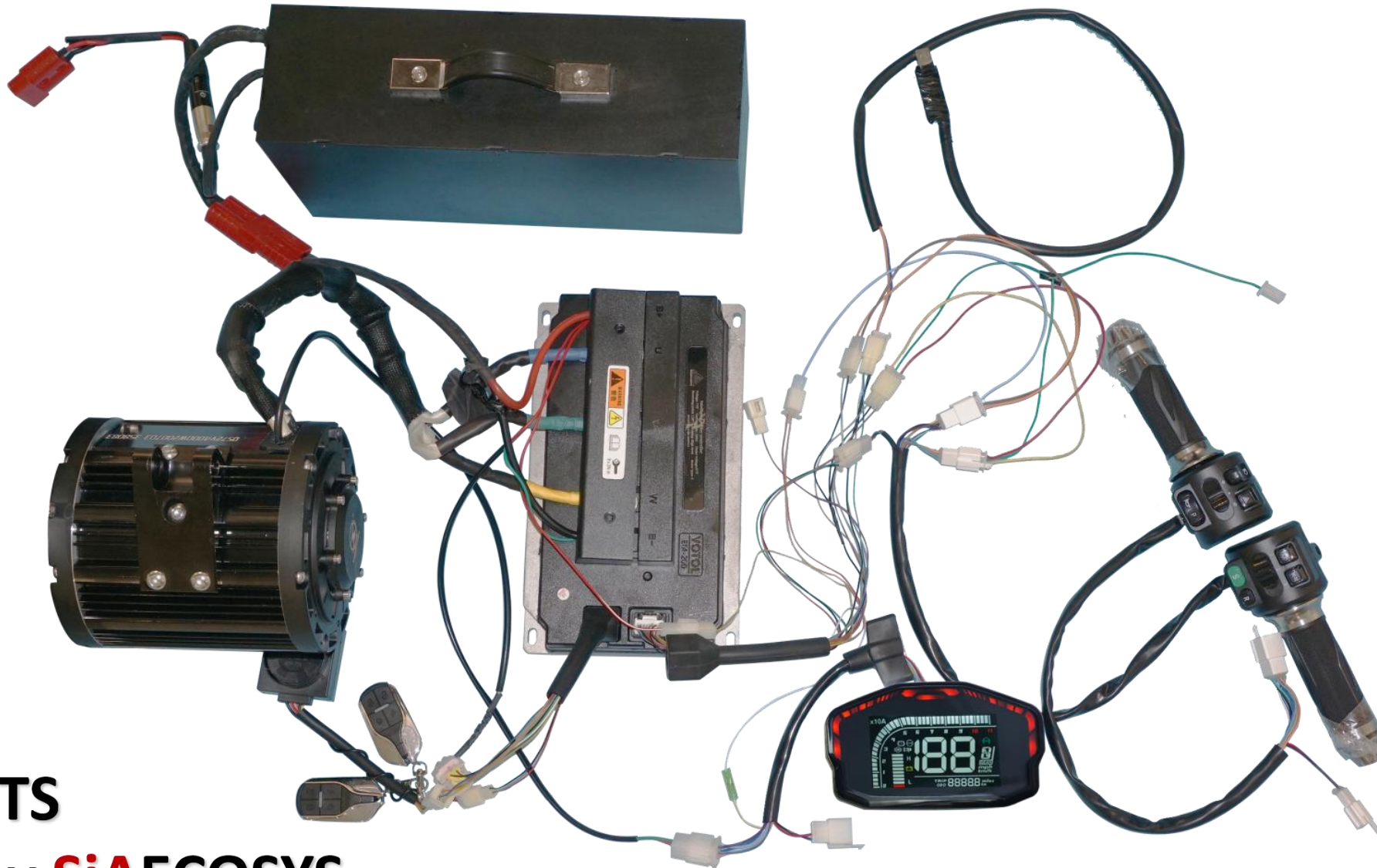
**1200m<sup>2</sup> warehouse In QSMOTOR, with hot sale products in store**



**60,000m<sup>2</sup> Modern EV Assembly Manufacture for ODM E2W**



[illegible]



**MOTOR KITS**  
Powered by **SiAECOSYS**



## Powertrain Solutions

Include Motor, Controller, Speedometer, Throttle, Charger, Wheel Rim, Brake Assembly, Wiring harness, DC-DC Converter, Immobilizer  
Options: Lithium Battery, IoT, Lights, Frame, Swingarm, Plastic Parts, Tires, ABS/CBS, Shock Absorption





**For Tuktuk 3 Wheeler Conversion** (from gasoline to electric in 1 hour)

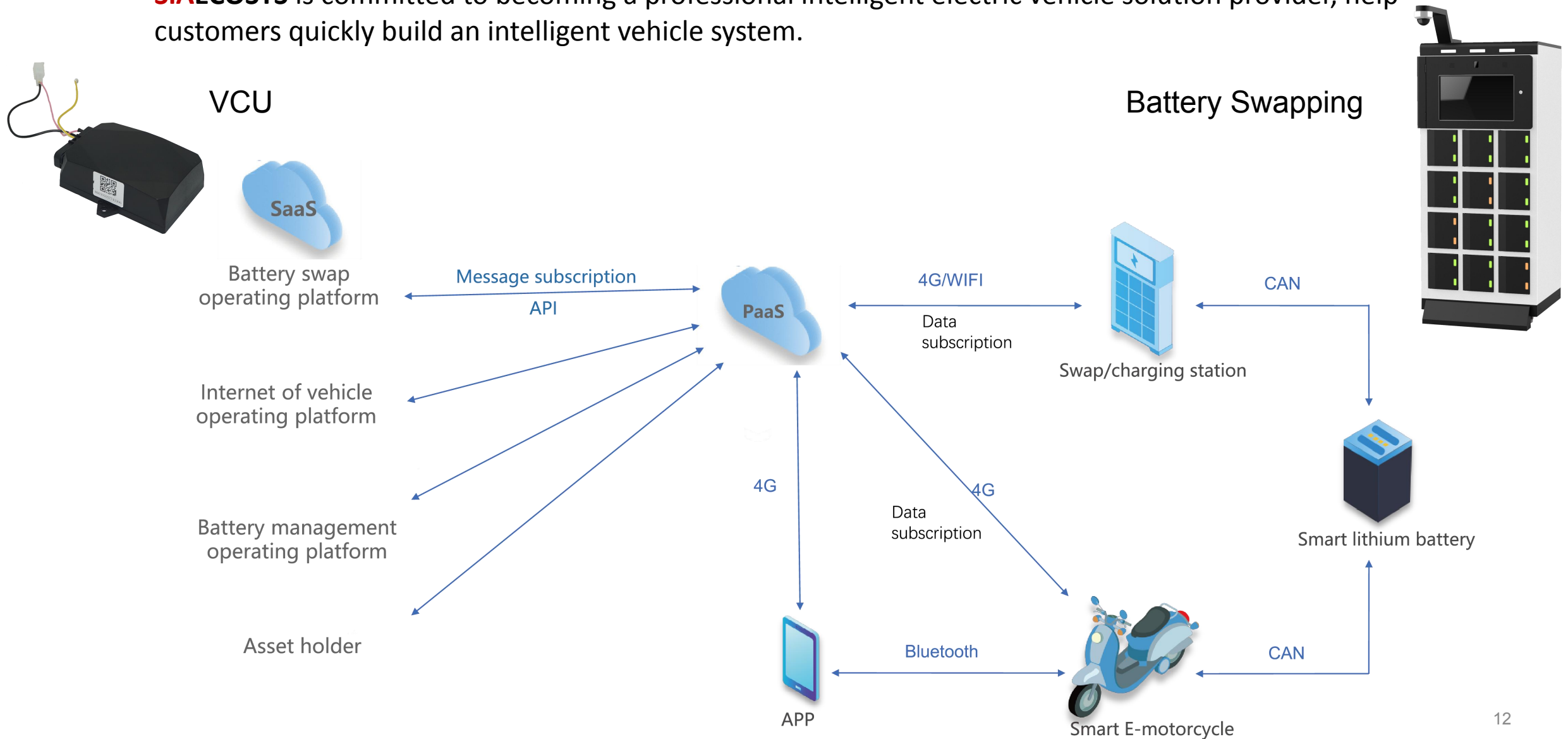
**Optional Motors:** AC, PMSM 3-11kW

**Basic solutions:** Motor+Gearbox+Controller+DC-DC Converter+Spedometer+Throttle+Wiring Harness+Mechanical Parts

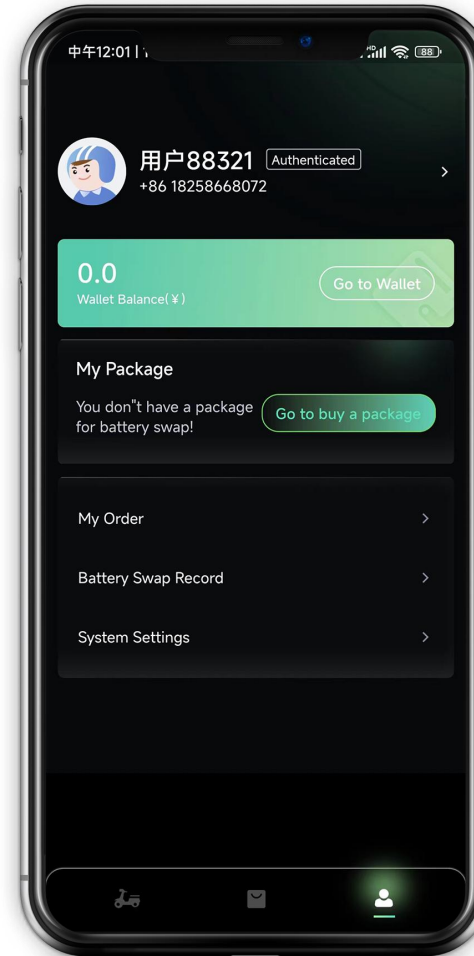
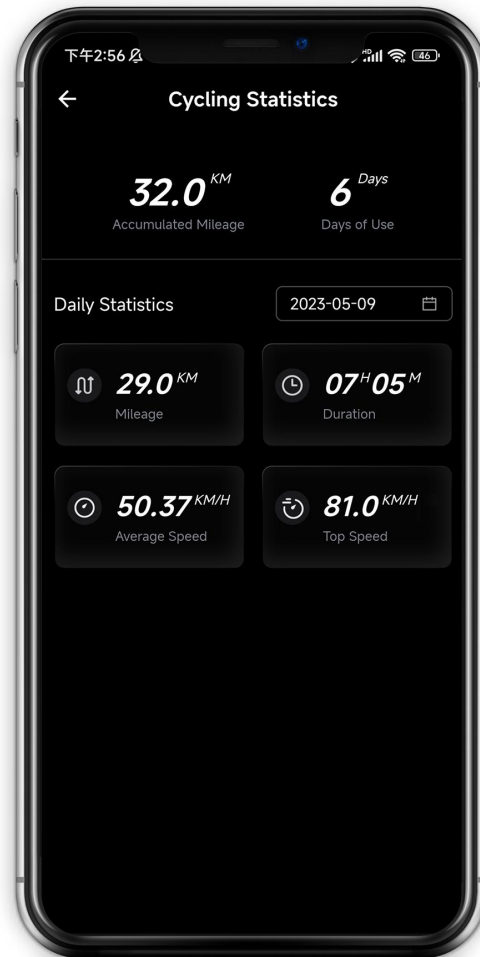
**Optional Extended configuration:** IoT, Bluetooth module, TFT speedometer

**Other Accessories:** Fast Charger, Intelligent Charging Station, IoV, Lithium Battery, Rent management system

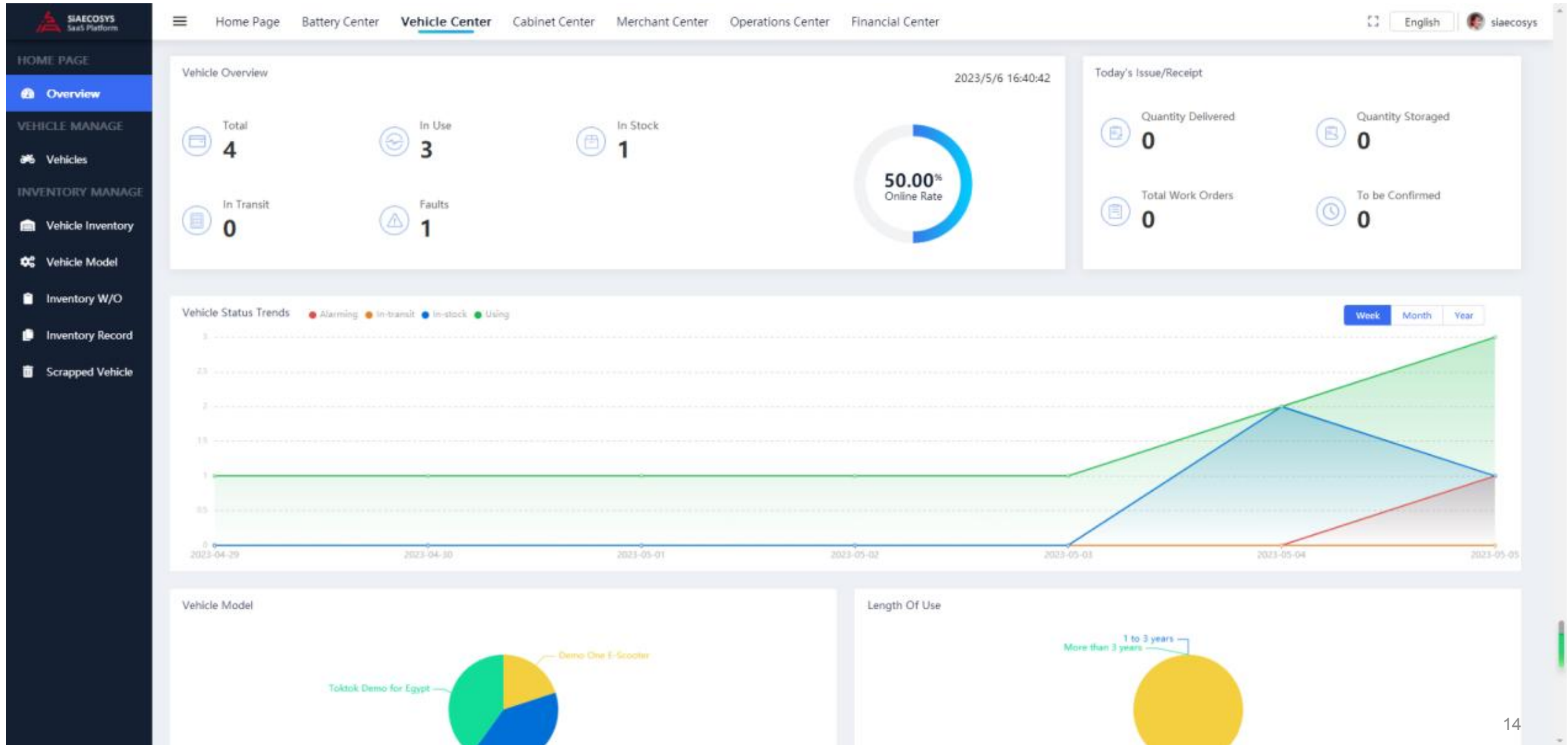
**SiAECOSYS** is committed to becoming a professional intelligent electric vehicle solution provider, help customers quickly build an intelligent vehicle system.



## APP

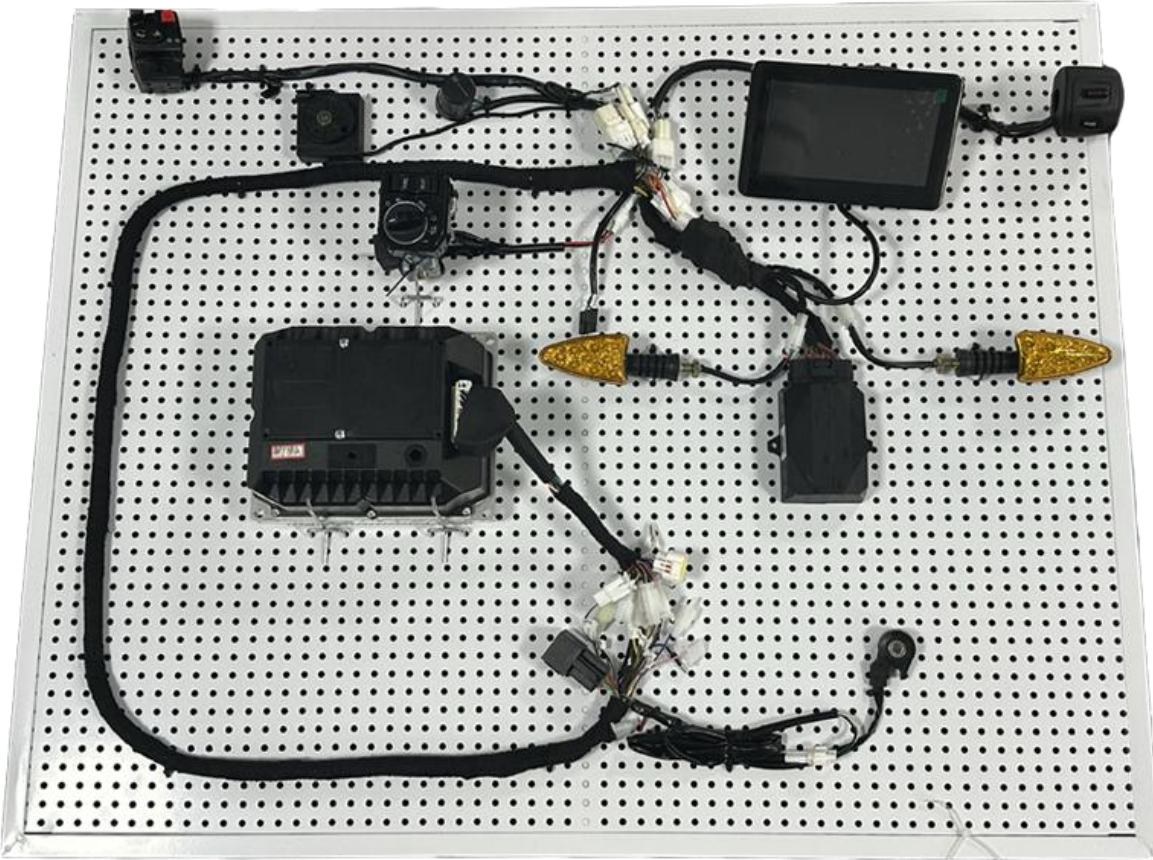


# SaaS - Vehicle Data





## Powertrain Kit with VCU



## Motor-Wheel Hub

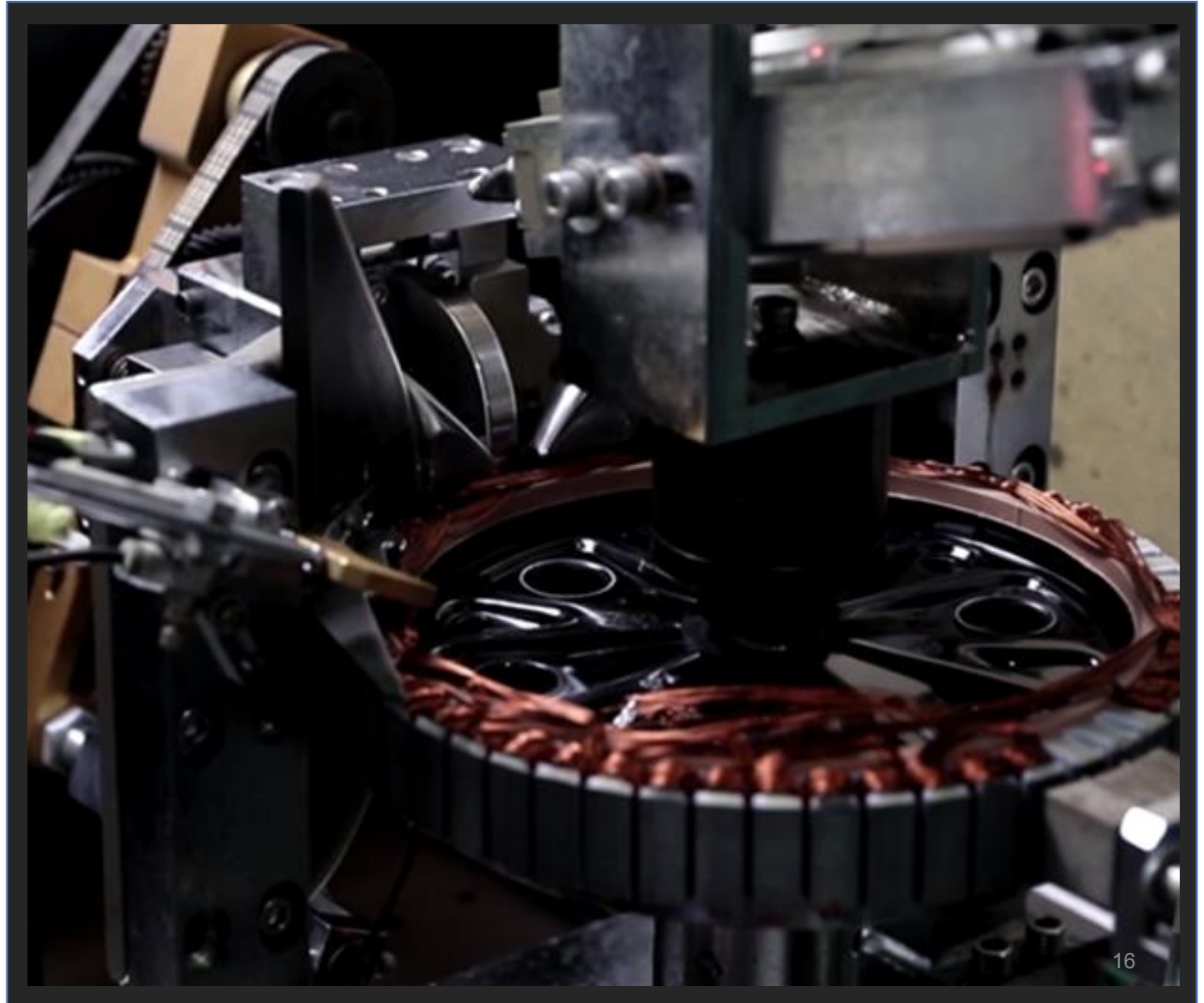
Wheel Hub Motor and PMSM Motor

Rated Power: 1KW~20KW

Speed: 30KM/H~180KM/H

Voltage: 48V~120V

Torque : 24N.M~400N.M





## PMSM Motor & Kits

1000W-9000W



## E-Scooter/Motorcycle Motor

10inch-17inch

500W-20kW



## Spoke Hub Motor

500W-8000W



## E-Car Hub Motor

1000W-12000W

## E-Single Shaft Motor

20inch&10inch-17inch

500W-8000W



# Electric Wheel Hub Motor



**10X2.15inch 212 Hub Motor**  
500W-2000W



**12X2.5inch 260 Hub Motor**  
800W-3000W

**12X3.5inch 260 Hub Motor**  
800W-12000W



**14X2.5inch 260 Hub Motor**  
800W-4000W



**17X1.6inch 260 Hub Motor**  
800W-2000W



**17X1.85inch 260 Hub Motor**  
2000W-6000W (private mold)



**17X2.5inch 260 Hub Motor**  
2000W (private mold)



**16X3.5inch 260 Hub Motor**  
2000W-8000W



**17X3.5inch 260 Hub Motor**  
800W-6000W



**205 Bike Spoke Hub Motor**  
1000W-3000W  
drop-outs 150-155mm



**273 E-car Hub Motor**  
8000W-12000W

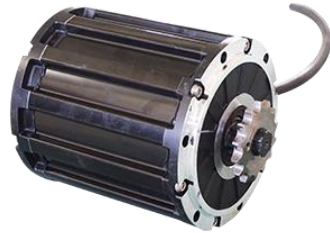


**20inch 205 Bike Hub Motor**  
1000W-1500W





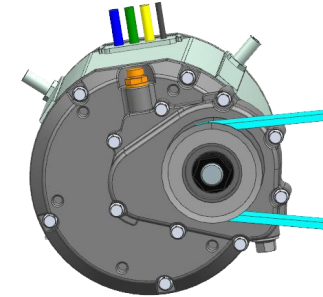
**1000W 90 V1 IPM Motor**  
belt/sprocket adapter



**2000W 120 V1 IPM Motor**  
belt/sprocket adapter/spline



**3000W 138 V3 IPM Motor**  
belt /spline



**4000W 138 V3 Water Cooled IPM Motor (NEW)**



**8000W 180 IPM Motor**



**EM50SP/EM50-4**  
72V 3900RPM 26.6N.m



**EM100SP/EM100-4**  
72V 4600RPM 49N.m



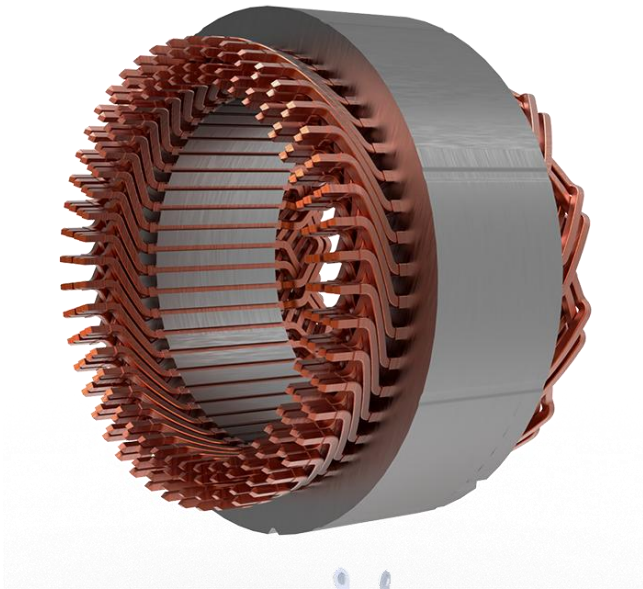
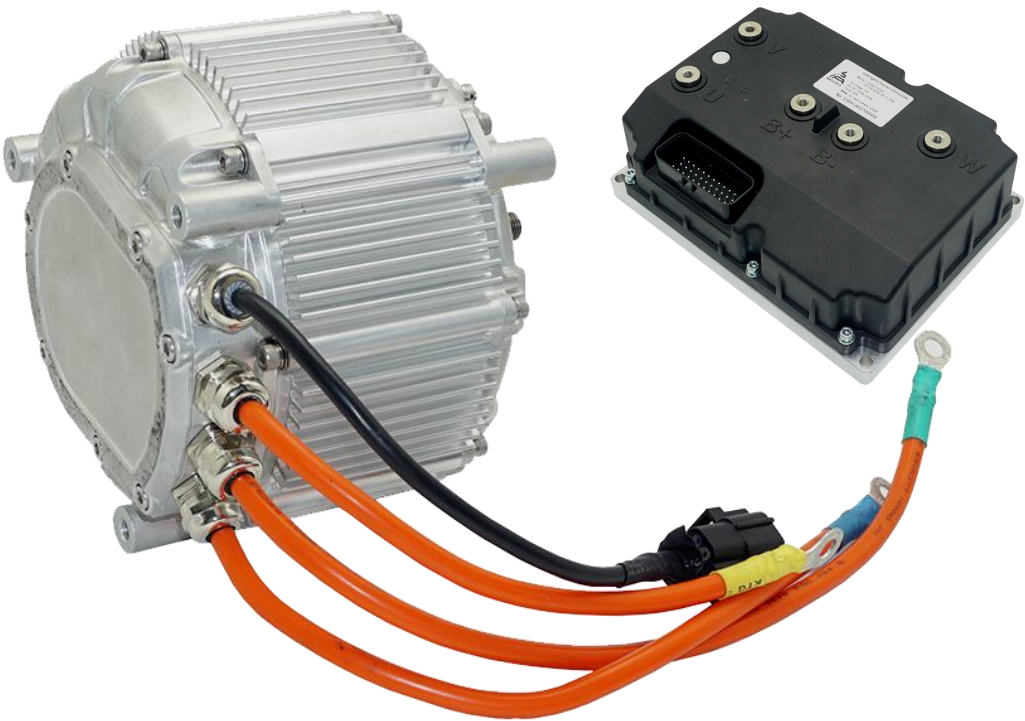
**EM150SP EM150/2**  
72V 7000RPM 98N.m



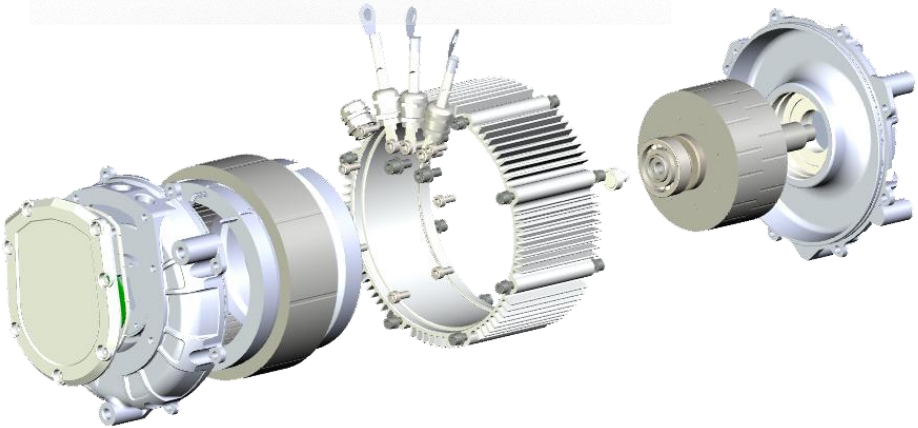
**EM200SP EM200/2**  
72V 7000RPM 100+N.m



**ND721200**  
72V 7000RPM 100N.m



SIA155-48			
Rated voltage	72V	Cooling method	Air cooling
Rated power	5KW	Peak power	18KW
Rated speed	3183RPM	Peak speed	7000RPM
Rated torque	15N.m	Peak torque	65N.m
Motor weight	10.5KG	Motor Size	170*185.5mm
Application	Electric Dirt Bike, ATV		
Feature	Hairpin Motor, Same tech as Tesla Motor, more copper rate Automatic production, high consistency/quality		





## Controller

Voltage:48V~120V

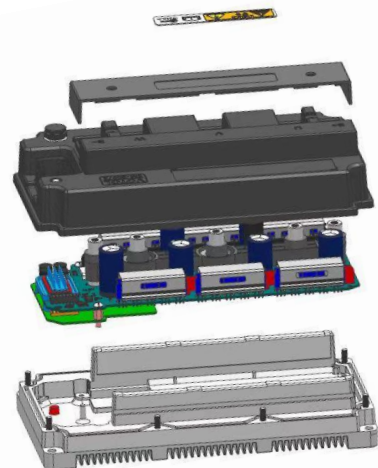
Bus Current:35A~300A, Peak : 40A~450A

Phase Current:100A~600A, Peak:120A~850A

Reverse Charge Function

E-brake Assistance Function

Flux Weakening Function



## Votol Controller



EM30SP



EM50SP



EM100SP



EM150/2



EM200/2



EM260SP

## Fardriver Controlle



SIAYQ72100



SIAYQ72120



ND72360



ND72530



ND72680



ND96850

## Sabvoton



SVMC72150



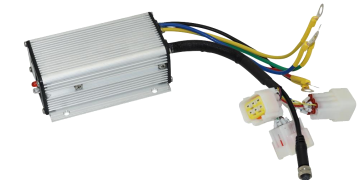
SIA7230



APT AE96600



Yuyangking



Kelly KLS7230S



# Speedometer



CT-22 LCD(adjustable)



DKD LCD with CAN



H6 TFT



750C TFT



X8-E(programable)



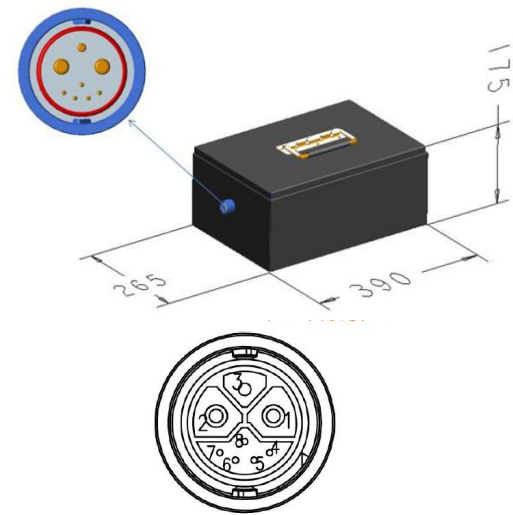
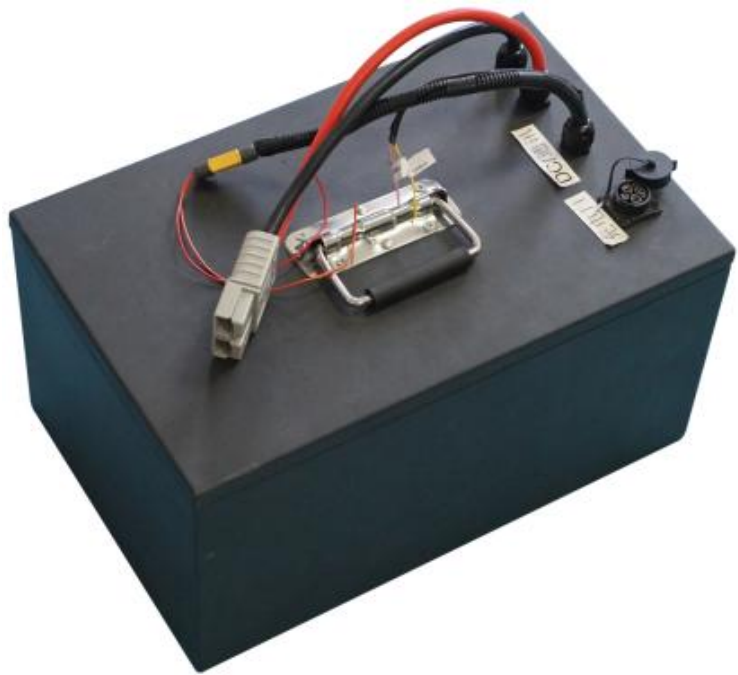
LCD VA with CAN(private mold)



TFT with CAN(private mold)



TFT with CAN



Port 接口	Definition 定义	Remark 备注
1	Discharge Positive+	
2	Charge/Discharge Negative-	
3	Charge+	
4	GND	
5	CAN_H	
6	CAN_L	
7	Key_ON	
8	Charge Wake-UP	



72V40Ah NCM Lithium Battery with Software BMS (CAN BUS),72V 40Ah/50Ah/60Ah available.  
This product is applicable to 72V electric motorcycle, with voltage, current, temperature protection function and voltage, temperature, current, SOC warning function. It can communicate with the charging machine and instrument of motorcycle through CAN2.0

New battery LG21700 NCM 72V 40Ah available(with UN38.3), parallel connection under development.





## DM396



## DM398

### Product Spec

**Battery Dimention :**

Slight Shap : 477\*225\*97mm

Square Shap : 353\*200\*170 mm

**Cell Type :** 21700

**Max Cell QTY :** 160

**Cell pack :** 20S8P/17S9P

**Battery V/Capacity :** 72V/40Ah & 60V45AH

**Battery Weight :** 15.5kg

**Protocol :** Support RS485/CAN

**Support Dual Battery (output 72V 180A peak)**



**600W without CAN**  
**48V 9A**  
**72V 7.5A**



**1000W with CAN**  
**48V 12A**  
**72V 12A**



**1200W with CAN(IP67)**  
**48V 15A**  
**72V 15A**



**1800W with CAN**  
**48V 20-25A**  
**72V 20-25A**



**1000W with CAN**  
**72V 45A**  
**96V 33A**



**6600W with CAN**





# Wheel Rim



10\*2.5inch



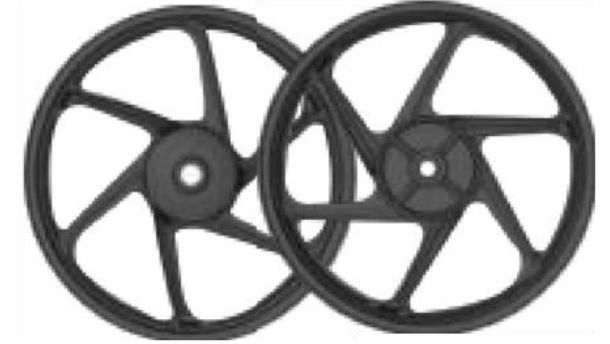
12\*2.75inch&12\*3.5inch



13\*3.5inch



14\*1.85inch



18\*1.85inch



13\*3.5inch



14\*2.15inch&14\*3.5inch



17\*2.5inch



17\*2.5inch



17\*2.5inch



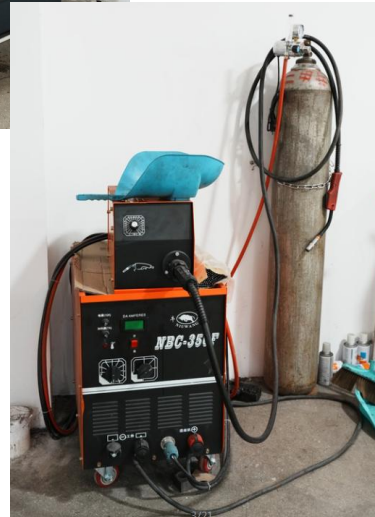
20\*1.75inch  
(bicycle)



Turning-lathe



Saw Machine



Welding Machine



Jig & Frame sample available



## Range

**Power:** 500W-8000W

**Speed:** 45KPH-120KPH

**Voltage:** 48V-96V

**Drop-out:** 135MM-200MM

## Electric High Power Bicycle



**E-bike weight, approx 47kg+80kg**

**Tire model: 2.50-19**

**Speed: 72V 80km/h**

**Climbing slope: 25°@127kg**

**Battery: 72V40h lithium battery**

## Application

---

### Electric Motorscooter with side drive motor

E.g.

E-bike weight: 100kg+2\*80kg

Speed: 72V 100kph

Gear ratio: 1:6.15

Climbing slope: 20° @40kph @180kg@120s

Battery: 72V30h

Tire: 110/70-12





## Application

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### Electric motorbike

e.g.

Z6 electric motorbike

E-motorbike weight: 115kg+2\*80kg

Speed: 95-100km/h

Gear ratio: 1:4.77

Climbing slope: 30° @190kg

Battery: 72V40h NCM lithium battery

Tire: 130/70-12

PS. Kit with CAN BUS, ABS(under developing).

0 to 100KM/H acceleration time: 6s





## Application

---

### Electric dirt bike

E.g.

E-bike weight: 60kg+2\*80kg

Speed: 100km/h

Gear ratio: Pending

Climbing slope: 30° @140kg

Battery: 72V40h NCM lithium battery

Tire: 17inch

PS. Kit with CAN BUS .



## Application

---

### Electric dirt bike

E.g.

E-bike weight: 100kg+80kg

Speed: 100-110km/h

Gear ratio: Pending

Climbing slope: 30° @140kg

Battery: 72V40h NCM lithium battery

Tire: 17inch

PS. Kit with CAN BUS .





## Application

### Electric High Power Bike

E.g.

E-Bike weight: 47kg+80kg

Speed: 70-80km/h

Climbing slope: 25° @127kg

Battery: 72V 40Ah lithium battery

Tire: 17inch





## Application

---

### Electric Motorscooter

E.g.

E-bike weight: 100kg+2\*80kg

Speed: 70km/h

Climbing slope: 12° @180kg

Battery: 48V NCM lithium battery

Tire: 120/70-12

PS. Kit with CAN BUS .



PS. Kit with CAN BUS .





PS. Kit with CAN BUS .





## Application

### Electric Light Car

E.g.

E-car weight, approx 300kg+350kg

Tire: 205/65R15

Speed: continuous 38km/h @48V by 4wd,

Climbing slope: 10° @650kg by 4wd

Battery: 48V lithium



## Application

---

### Electric Light Car

E.g.

E-car weight, approx 815kg+285kg

Tire: 185/65 R14

Speed: continuous 120km/h @96V by 4wd,

Climbing slope: 30° @895kg by 4wd

Battery: 96V200Ah or 110V200Ah

lithium(with more speed)



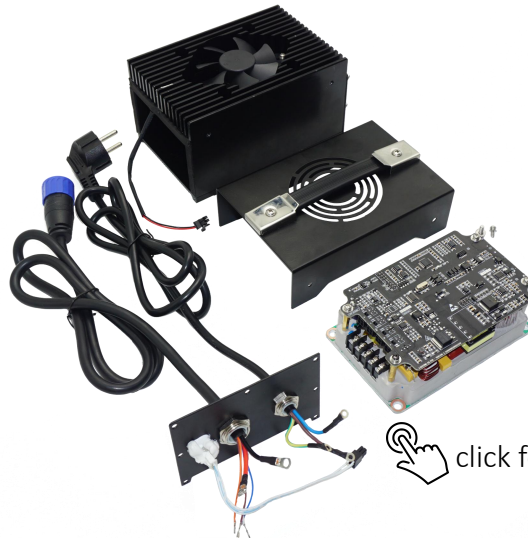




click for video

Sine wave type  
High-performance Moss tube  
Power range:1000W-20KW  
Working voltage:48-96V  
With temperature sensor  
Self-learning function  
Programmable software  
Waterproof cover

Power range:1000W-6600W  
Working voltage:110-220V  
Output voltage:48-96V  
Charging current:10-50A  
Waterproof cover(Fan not included)  
Smart protection  
Support CAN bus



click for video



click for video

BLDC and IPM  
High quality magnet  
Support energy regenerative recycle  
Easy to assemble  
With temperature sensor  
High efficiency: 85~92%



## Oversea Local production (technical support)

**Hub motor Component:**  
Side cover, Stator & Rotor



### Equipments:

Automatic Glue Machine, Air Gun, Servo Press Machine, Motor Test Machine, Lathe Disc brake machine, Motor splitter

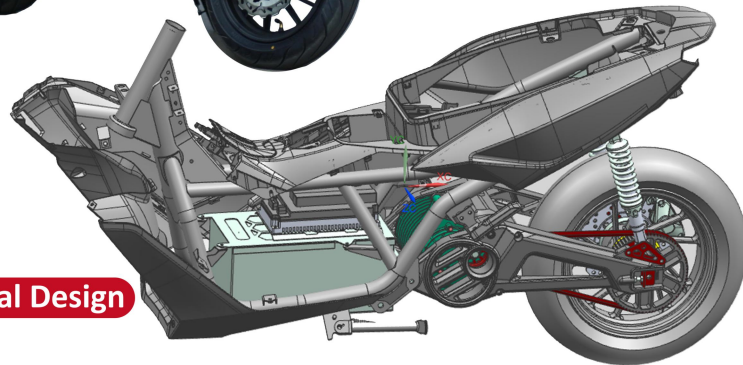


SiAECOSYS has professional engineers for 3D design, we have rich experience on mechanical structure design and e-drivingchain design. SiAECOSYS can build samples to test and develop according to 3D design before mass production. Currently, SiAECOSYS has changed more than 20 kinds gasoline motorcycle to E-motorcycle successfully.



**Vmax Scooter Conversion  
from gasoline to electric  
100kph & 100km**

**Gasoline Scooter**



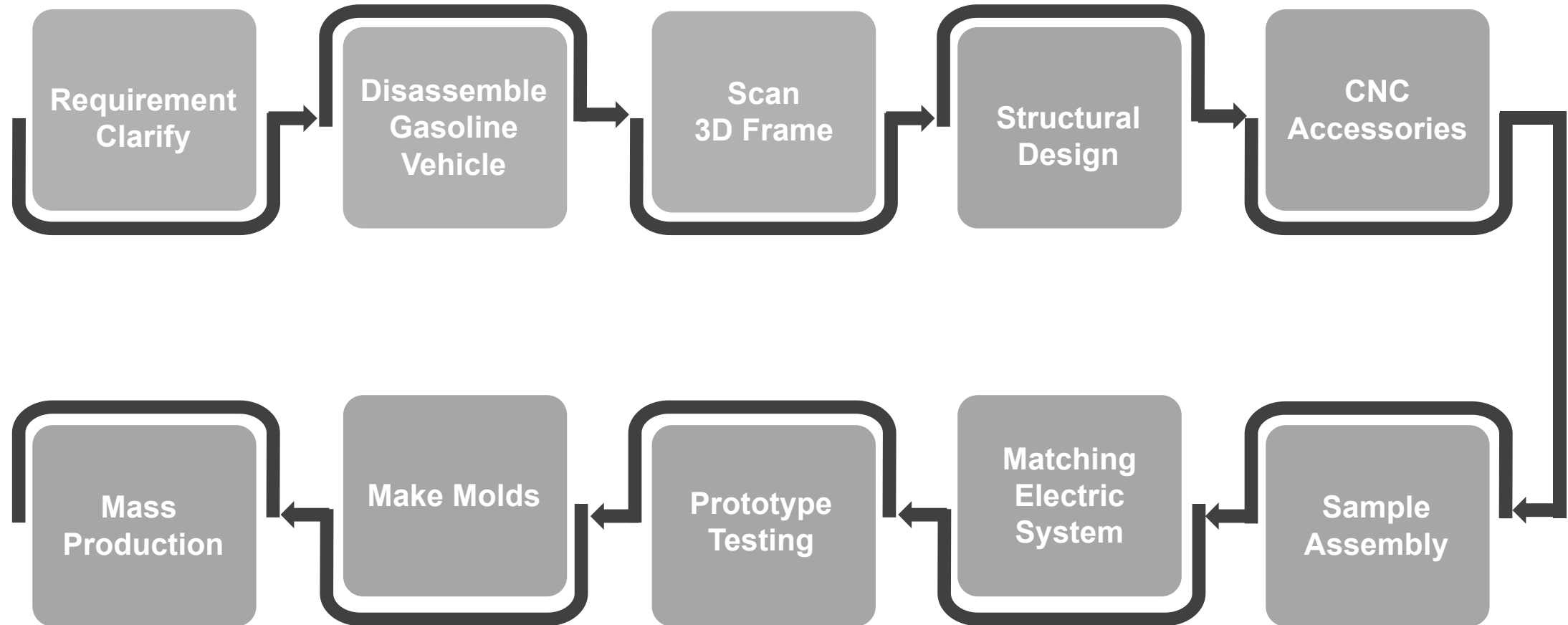
**3D Structural Design**



**CNC Powertrain Kit**



**Electric Prototype**



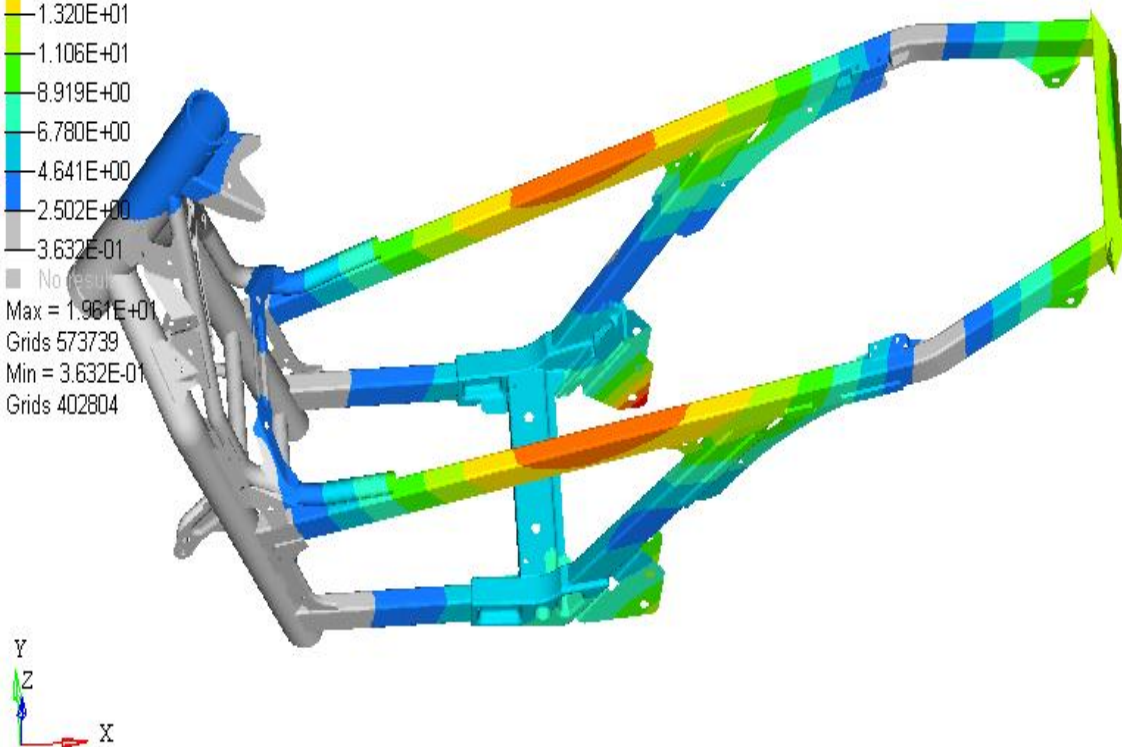


## FEA (Finite Element Analysis) of Mechanical Part

Contour Plot  
Eigen Mode(Mag)  
Analysis system

1.961E+01  
1.748E+01  
1.534E+01  
1.320E+01  
1.106E+01  
8.919E+00  
6.780E+00  
4.641E+00  
2.502E+00  
3.632E-01  
No result  
Max = 1.961E+01  
Grids 573739  
Min = 3.632E-01  
Grids 402804

1: Model  
Subcase 1 (mt) : Mode 6 - F = 1.739685E+02 : Frame 0



### 2.前轮轮圈强度分析

#### 2.1、径向冲击工况

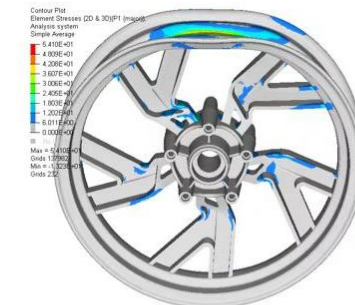
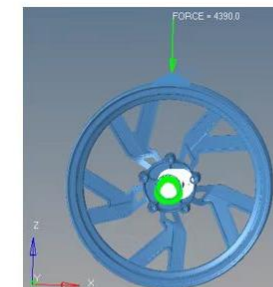
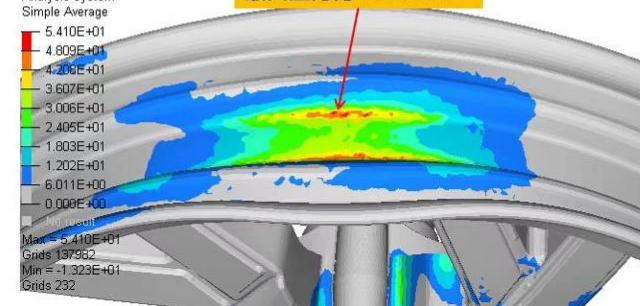
模型边界条件

- 约束轮圈轴自由度123456;
- 在轮圈圆周上辐条位置施加载荷  $F1=4390N$ 。

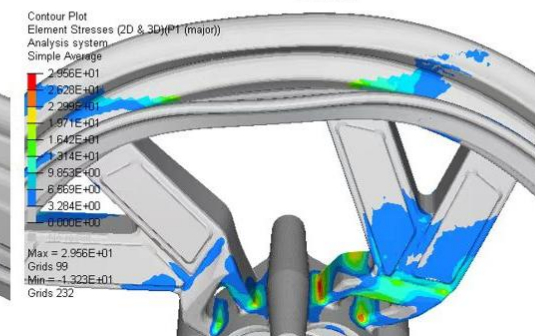
计算结果:

Contour Plot  
Element Stresses (2D & 3D)(P1 (major))  
Analysis system  
Simple Average  
Max = 5.410E+01  
Grids 137962  
Min = -1.323E+01  
Grids 232

最大应力为54.1MPa



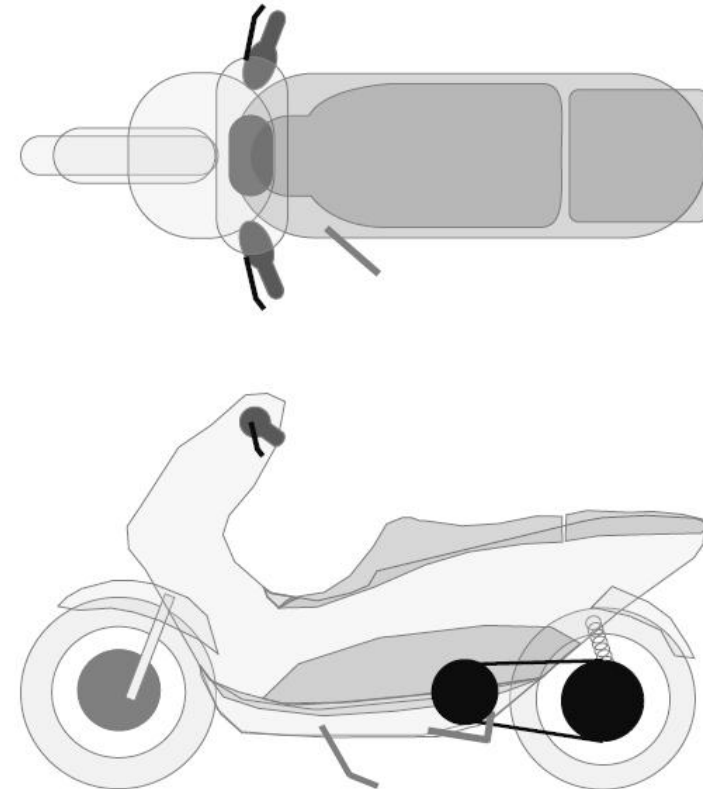
Contour Plot  
Element Stresses (2D & 3D)(P1 (major))  
Analysis system  
Simple Average  
Max = 2.956E+01  
Grids 99  
Min = -1.323E+01  
Grids 232

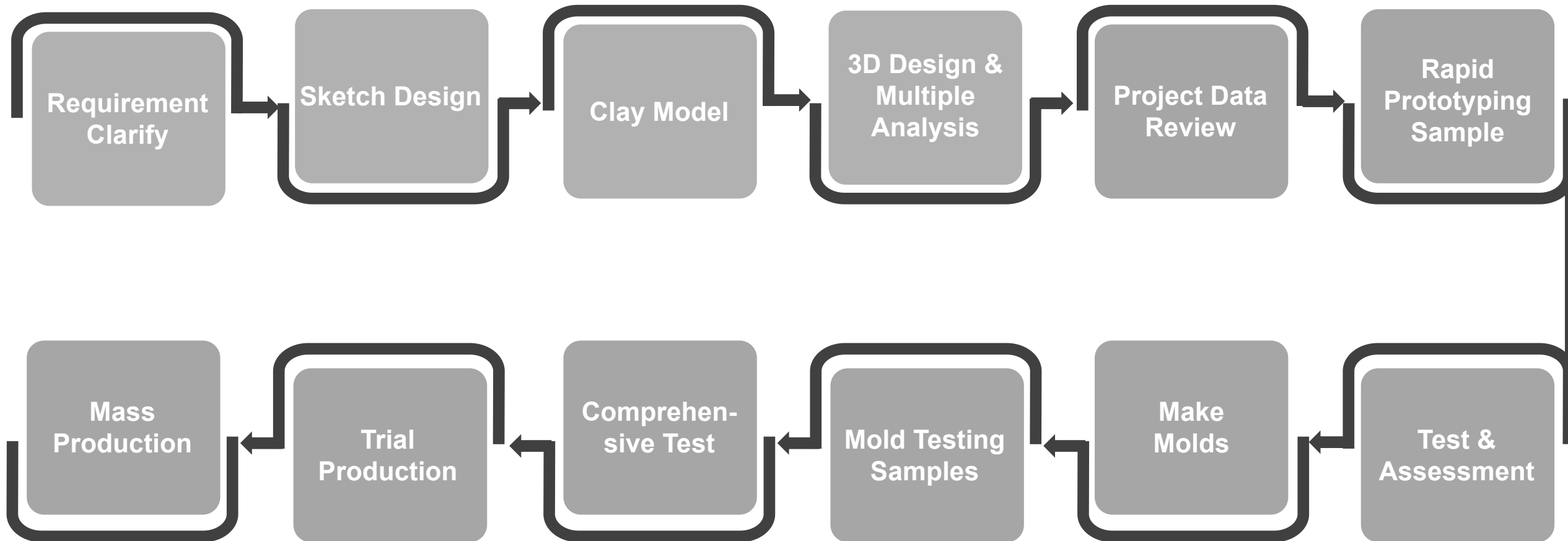


## New Electric 2 Wheeler(E2W) Development

Have done some high power E2W projects successfully, SiAECOSYS has abundant experience in EV development for mass production. From design, prototype to trial & mass production, offer one stop solutions!

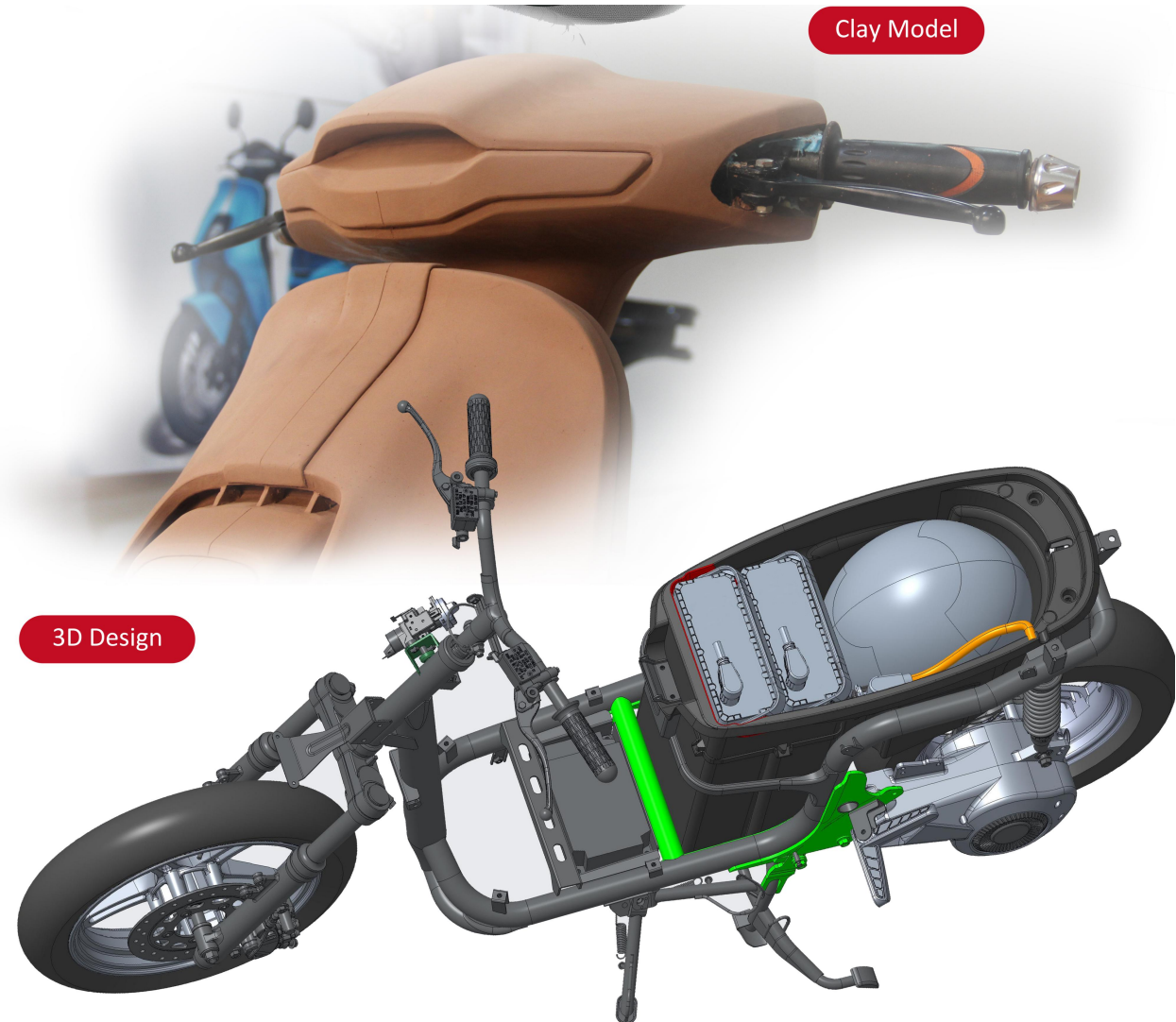
By testing powertrain samples, customer might build own prototype and start sales, SIA could also start from there, push forward the implementation of projects by making mold and further testing, lead to volume production (assembly optional). Help customer to make it happen!







# EV Development



For attached new E-Scooter, designed to 80kph & 80km, powered by side motor or hub motor, it is under clay model stage, could be customized based on detailed requests. New samples could be done soon and mass production ready in 6 months.



5S Standards Factory Covers 54,089 M<sup>2</sup>



Domestic First-Class Inspection Line



Intelligent assembly lines with Automated Guided Vehicle(AGV) And Manufacturing Execution System(MES)



Quality Assurance Assembly Tools from **Atlas Copco** and **Bosch**

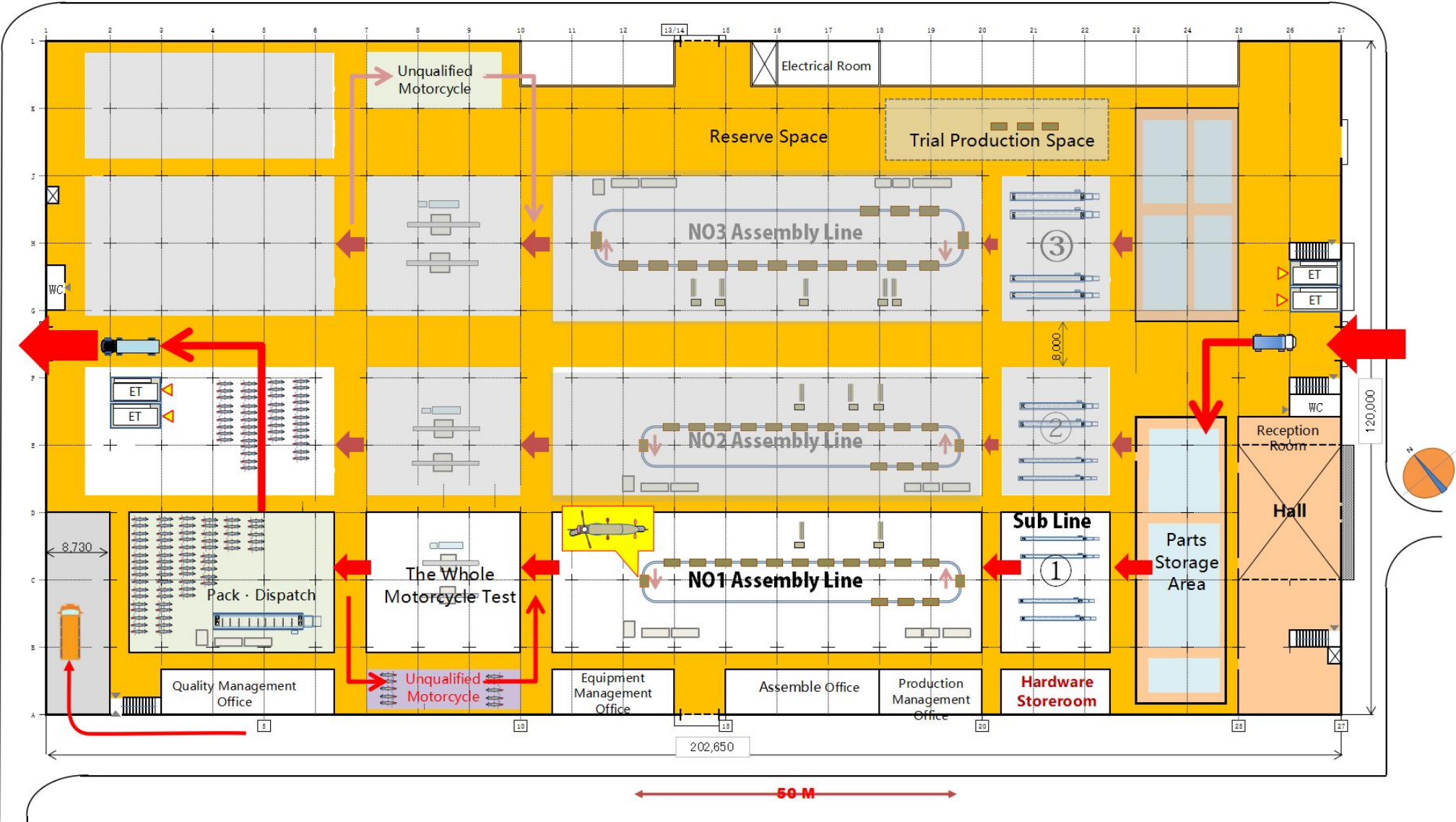


# New Factory Layout (1F)



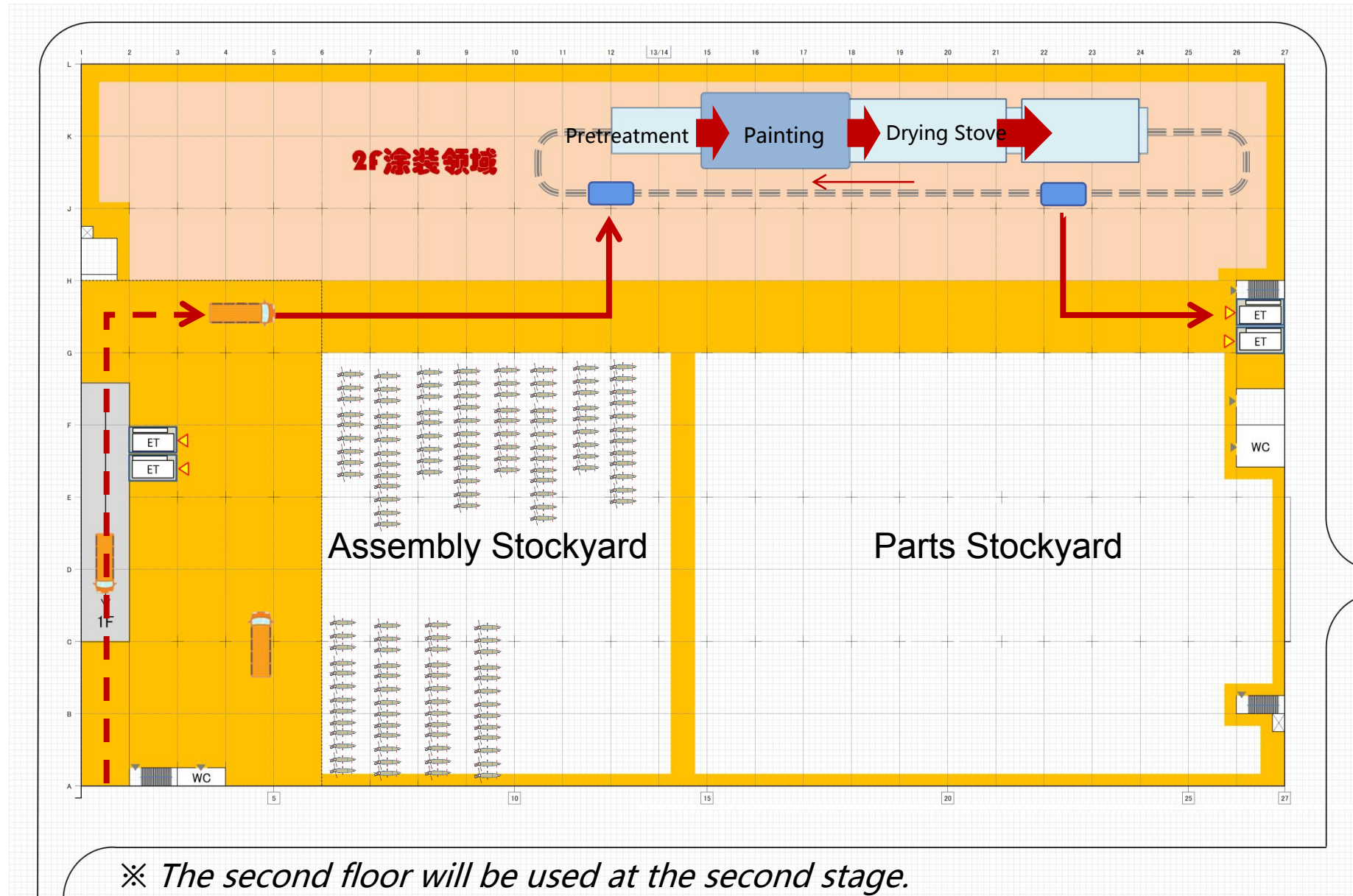
## Assembly Lines (Ready in August, 2023)

WEST ↔ EAST (ENTRANCE)





# New Factory Layout (2F)



## TSUCHIYA HIROTOSHI

He has worked for HONDA(Honda Technical Research Industry Co., LTD.) for more than 40 years. He used to be the General Manager of Wuyang Honda Motorcycle (*Guangzhou*) Co., LTD. In 2009, he was hired as the General Manager of Zhejiang Zhuochi Machinery Co., LTD.

He has mainly engaged in the development of production technology and the reform of production system, and the introduction of advanced technology (*Automation, Labor Saving*) and new machine types in the world production base support and guidance, committed to the high efficiency of production workshops.

- Specialize in establishment of efficient management system integrating production, quality and cost saving in the workshop.
- Specialize in workshop layout planning, flow line promotion, and 5S management.
- Specialize in Japanese lean management mode, familiar with the establishment of the company's operating system.
- Specialize in full-round analysis of the company, and to take effective solutions, also proficient in the five fundamental points of enterprise management(Q·C·D·S ·M).



## Power Train solutions

To customized a suitable motor & kits, could you pls. inform below points:

- 1.E-bike, E-scooter, E-tricycle or E-car?
- 2.Weight of vehicle with battery, loading weight (weight with load only)?
- 3.Tire model/diameter?
- 4.Rated voltage and wattage of motor, Speed, and climb angle or torque @ what speed?
- 5.Battery nominal voltage, peak voltage and capacity, vehicle range?
- 6.Need CAN-BUS protocol or not?
- 7.Order forecast quantity/year?

Within your details information, we could make assessment and calculation accordingly for your project.

- E.g.
1. E-motorbike (2 wheeler)
  2. 100kg + 2\*80kg
  3. 120/70-12
  4. 72V 3000W 70km/h 15° @260kg
  5. 72V 30Ah lithium battery, 84V peak, 70km
  6. CAN-BUS
  7. 1000pcs/year



Calculations & Model Selection

Analysis

Total weight about 100+80\*2kg(with driver & battery), max. speed 70km/h, wheel radius with tyre 0.2364m(120/70-12), If suppose the EV cross section area is 0.7, the windage resistance factor is 0.65, then input all the data in the sheet (blue color).

Then we'll get the calculated output which shown in red color.  
From the output data, we can see:

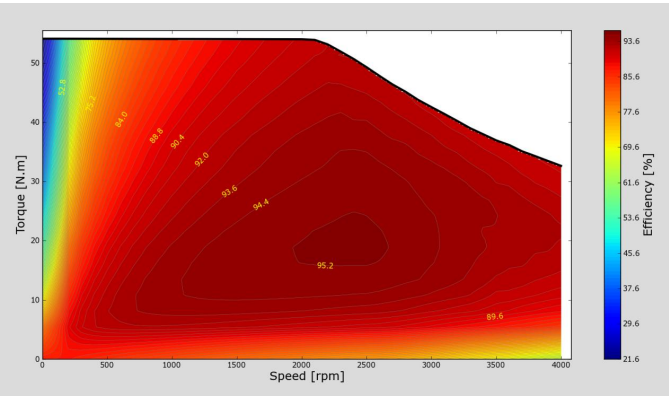
- 1. On the ground, The EV need 785.85RPM while the torque is 36.56N.m
- And in this point, the motor out power is 3008.8W.
- 2. When climbing @12KPH (134.72RPM), it need the max. torque 168.43N.m
- when climbing 15 degree slope(25.88%) @260kg.

According to the calculation, we will check suitable test report/map/performance of power train, and advise the best configuration accordingly.  
Btw., we might need more information for controller functions settings.

Blue color is input

Red color is calculated output

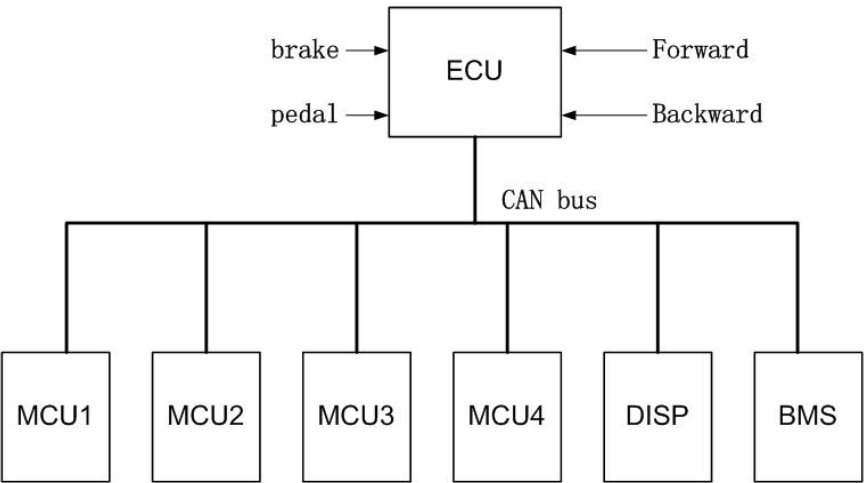
Electric Motorbike - MM 20190113						单个电机驱动
			260	EV Weight+Driver, kg		
			15	Inclination Angle (a), degree		
			0.7	EV cross section area (A)		
	0.6-0.7		0.65	Windage Resistance Factor (Cw)		
Climbing Velocity, V'	12		70	Max Velocity (V), KPH		
120/70-12			0.2364	r, Tyre radius @		
25.88%		sin a				
1.205kg/m3		p @ 20°C				
660.14				Climbing resistance		
49.27				Rolling resistance when Climbing		
51.01				Rolling resistance on the ground		
103.65				Windage resistance @ max speed		
3.05				Windage resistance @ 10km/h		
712.46				Total Resistance when climbing		168.426404
168.43				Required torque when climbing		
154.66				Total Resistance on the ground		
36.56				Required torque on the ground		36.561545
2.54				a when starting , Fw=0		
8.87				t (s), S=100m		
10.92				Vt=100KPH, 0- 100KPH		78
785.85				required RPM at max speed		873.166699
13.10				wheel speed (RPS) at max speed		
134.72				required RPM' when climbing		
2.25				wheel speed (RPS') when climbing		
2376.08				Motor Power when climbing		2376.08332
3008.80				Motor Power on the ground		3008.79656
Voltage V	Speed km/h	EFF	Calculated battery current A	Range km	Capacity Ah	
78.0	70.0	84.0%	45.9	80.0	58.3	
78.0	45.0	84.0%	15.4	80.0	30.4	
78.0	30.0	84.0%	7.6	80.0	22.4	



CAN BUS

SiAECOSYS develop its own CAN BUS protocol for 2 wheeler, include controller, speedometer, battery BMS and charger.

Customized CAN-BUS protocol is available, the BMS might need to re-developed, match with charger, speedometer and controller, which cost USD 20,000 to 50,000 depends on detailed request, take approx 8 months.



MCU:Motor control unit  
DISP:Display  
BMS:Battery Management System

■. Regarding CAN Protocol - 1

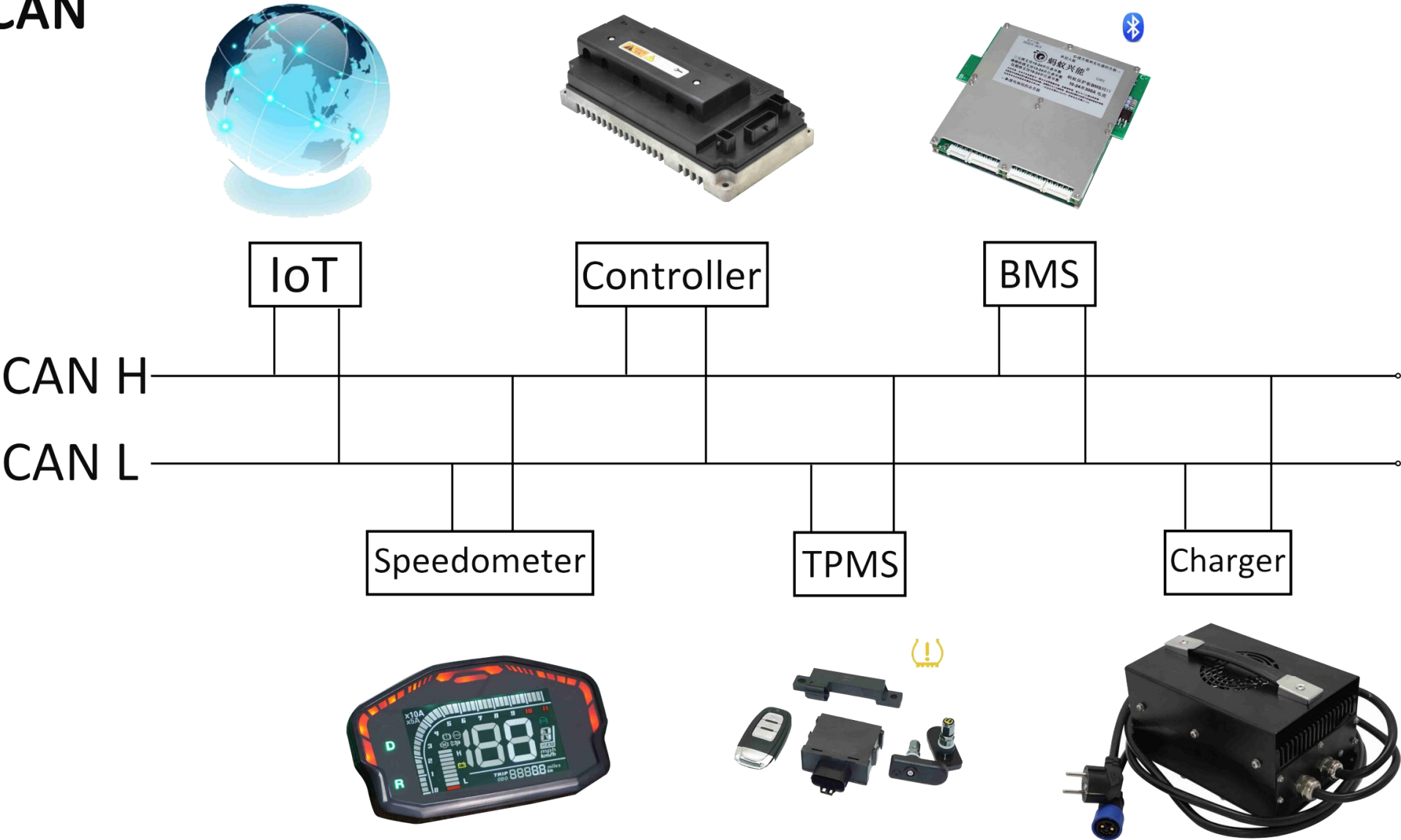
- 1. Controller ↔ Cluster : vehicle speed(km/h), rear tire Φ458.8mm
- 2. BMS ↔ Cluster : SOC display
  - 1. Cluster must display SOC % from 0% to 100%
  - 2. Cluster must display warning lamp when SOC is below 30%, additionally
- 3. BMS ↔ Charger : we will send CAN protocol by April 20<sup>th</sup>.

from	to	ID	byte0	byte1	byte2	byte3
controller	cluster	0x10261022	speed(km/h), unsigned char(1byte)0~255			
BMS	controller	0x10261051				

byte4	byte5	byte6	byte7	Remarks
				the diameter of rear tire : 458.8mm
SOC, unsigned char(1byte)0~255	BatteryTemp char(1byte)-127°C~128°C			<div><div>◆ Battery SOC</div><div><div>○ from SOC 20% to 100% --&gt; throttle MAX torque</div><div>○ from 0% to 20%, continually Attenuating</div></div><div>◆ Battery Temperature</div><div><div>○ from temp 0°C to -15°C</div><div>--&gt; throttle MAX torque form 100% to 80%</div></div></div>

250kbps use

CAN





Technical drawing of a wheel hub assembly, showing front, side, and cross-sectional views with dimensions and part numbers.

**Front View (Left):** Shows a wheel with a central hub. Dimensions include a hub diameter of  $\varnothing 58$  and a wheel diameter of  $\varnothing 280$ .

**Side View (Middle):** Shows the hub assembly with dimensions: 280 (total width), 82 (hub width), 64 (flange width), 66.5 (hub offset), 40.5 (flange offset), and 14<sup>0</sup><sub>-0.10</sub> (flange thickness). A callout shows a detail of the hub mounting with dimensions 14<sup>0</sup><sub>-0.10</sub> and  $M18 \times 1.5-6h$ .

**Cross-sectional View (Right):** Shows the internal components of the hub assembly, including the hub (1), flange (2), and mounting bracket (3). Dimensions include 100 $\pm 1$  (total length), 82 $\pm 1$  (hub length), 13 (flange thickness), 9 (flange offset), 9 (flange offset), 14<sup>0</sup><sub>-0.10</sub> (flange thickness), and  $\varnothing 303.1$  (flange diameter). A callout shows a detail of the hub mounting with dimensions 14<sup>0</sup><sub>-0.10</sub> and  $M18 \times 1.5-6h$ .

**Part Numbers:** 49-9.1X81W, 49-9.1X81W, 49-9.1X81W, 49-9.1X81W.

56

## Customization

Customization is available for mass production, there is MOQ request.

### For Motor

new windings, new design of wheel motor, exclusive side cover, customized phase wire length and connectors, cardboard package

### For Wheel

exclusive design of front and rear wheel

### For Controller

CAN BUS protocol, new appearance

### For Charger

CAN BUS protocol, input & output connectors

### For Speedometer

CAN BUS protocol, complete new model, new UI of TFT display

### For Throttle

New silkprint of buttons

...



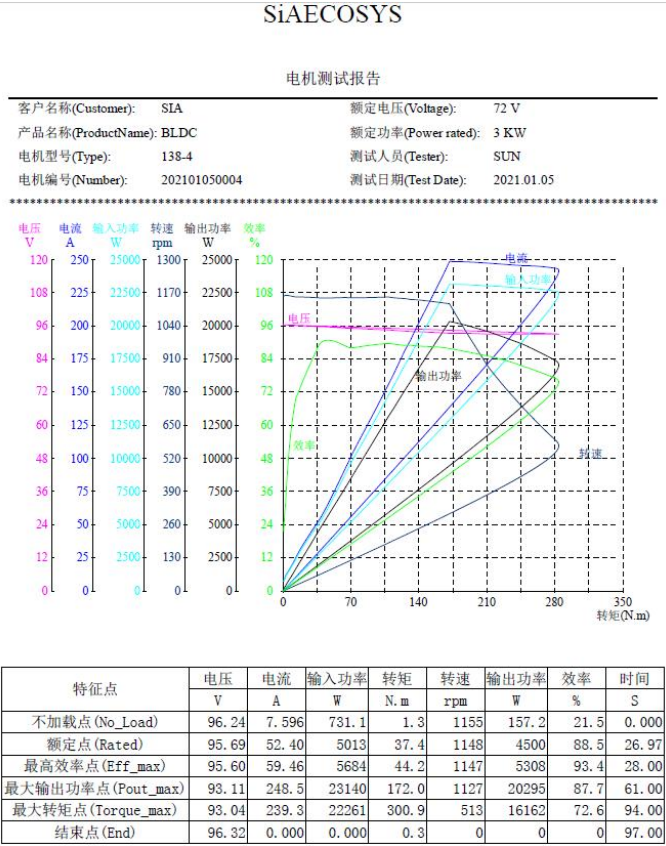
## Power Train Test

SiAECOSYS could make power train samples performance test once sample done, able to do temp rise test, R85 test, aging test, chassis testshare, share dyno report with customers.





Dynometer test - Wheel Hub Motor



序号	电压 V	电流 A	输入功率 W	转矩 N.m	转速 rpm	输出功率 W	效率 %	时间 S
1	96.24	7.596	731.1	1.3	1155	157.2	21.5	0.000
2	96.24	7.548	726.4	1.4	1155	169.3	23.3	4.000
3	96.22	10.27	988.6	2.7	1158	327.4	33.1	7.000
4	96.20	11.12	1069	2.7	1160	327.9	30.7	10.00
5	96.16	14.48	1392	5.8	1159	703.8	50.5	13.00
6	96.11	18.22	1751	8.8	1157	1066	60.9	16.00
7	96.04	24.32	2336	13.4	1154	1619	69.3	19.00
8	95.97	30.06	2885	17.4	1152	2099	72.8	22.00
9	95.86	38.99	3737	24.6	1151	2965	79.3	25.00
10	95.69	52.40	5013	37.4	1148	4500	88.5	26.97
11	95.60	59.46	5684	44.2	1147	5308	93.4	28.00
12	95.16	91.44	8702	63.7	1151	7676	88.2	31.00
13	95.04	99.48	9454	69.3	1148	8330	88.1	34.00
14	94.95	106.7	10133	74.0	1148	8894	87.8	37.00
15	94.79	118.4	11223	82.9	1149	9973	88.9	40.00
16	94.34	156.2	14736	109.2	1153	13183	89.5	43.00
17	94.20	168.0	15822	117.7	1146	14122	89.3	46.00
18	94.04	179.4	16871	124.4	1148	14952	88.6	49.00
19	93.90	189.1	17758	132.0	1142	15784	88.9	52.00
20	93.75	201.2	18866	139.2	1144	16674	88.4	55.00
21	93.38	228.9	21372	159.7	1132	18928	88.6	58.00
22	93.11	248.5	23140	172.0	1127	20295	87.7	61.00
23	93.09	248.4	23123	186.0	1032	20097	86.9	64.00
24	93.08	247.6	23048	199.5	949	19822	86.0	67.00
25	93.06	247.2	23006	212.3	878	19516	84.8	70.00
26	93.02	246.8	22962	224.6	819	19259	83.9	73.00
27	93.03	245.8	22870	236.1	766	18935	82.8	76.00
28	93.01	245.5	22833	247.6	717	18587	81.4	79.00
29	93.01	245.1	22799	258.7	673	18229	80.0	82.00
30	93.01	244.5	22746	269.5	632	17834	78.4	85.00
31	92.99	243.1	22606	280.4	592	17381	76.9	88.00
32	92.99	242.5	22546	291.3	556	16958	75.2	91.00
33	93.04	239.3	22261	300.9	513	16162	72.6	94.00
34	96.32	0.000	0.000	0.3	0	0	0	97.00



QS 8000W 273 V4 Hub Motor with APT96600

Dynamometer

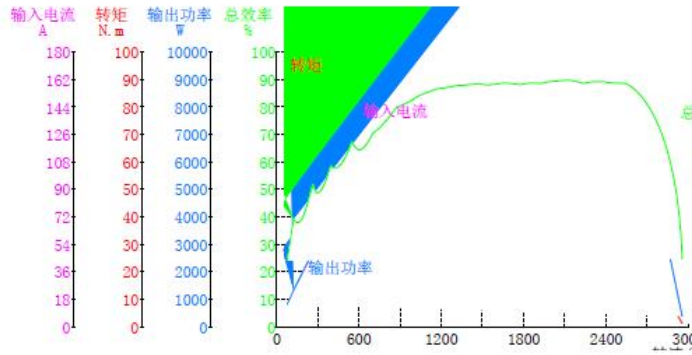


Dynometer test - IPM & PMSM Motor

电机测试报告

客户名称(Customer): 全顺  
产品名称(ProductName): 永磁同步电动机  
电机型号(Type): QS-138-三代减速  
电机编号(Number): 202011130003

额定电压(Voltage): 72V  
额定功率(Power rated): 3KW  
测试人员(Tester):  
测试日期(Test Date): 2020.11.13



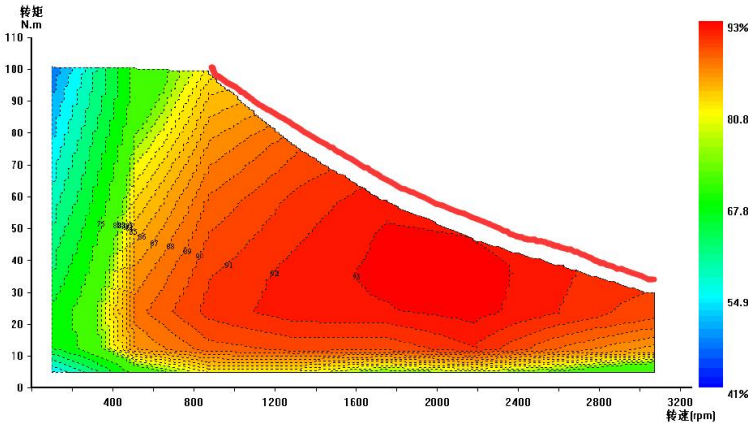
特征点	输入电压	输入电流	输入功率	电机电压	电机电流	电机功率	电机功率因数	电机频率	转矩	转速	输出功率	控制效率	电机效率	总效率	时间
	V	A	W	V	A	W		Hz	N.m	rpm	W	%	%	%	S
不加载点(No_Load)	71.93	30.87	1534	56.53	102.6	1376	0.137	583.0	1.22	2955.0	377.5	89.7	27.4	24.6	0.000
最高效率点(Eff_max)	70.21	156.0	10704	53.32	137.8	10489	0.824	437.3	43.04	2134.7	9620	98.0	91.7	89.9	9.016
最大输出功率点(Pout_max)	70.21	156.0	10704	53.32	137.8	10489	0.824	437.3	43.04	2134.7	9620	98.0	91.7	89.9	9.016
最大转矩点(Torque_max)	71.41	48.26	3349	20.01	278.9	2778	0.287	49.70	98.26	126.5	1301	83.0	46.8	38.9	29.02
结束点(End)	71.41	48.26	3349	20.01	278.9	2778	0.287	49.70	95.14	80.6	802.9	83.0	28.9	24.0	29.52

电机测试报告

客户名称(Customer): 全顺  
产品名称(ProductName): 永磁同步电动机  
电机型号(Type): QS-138-三代减速  
电机编号(Number): 202011130003

额定电压(Voltage): 72V  
额定功率(Power rated): 3KW  
测试人员(Tester):  
测试日期(Test Date): 2020.11.13

序号	输入电压	输入电流	输入功率	电机电压	电机电流	电机功率	电机功率因数	电机频率	转矩	转速	输出功率	控制效率	电机效率	总效率	时间
	V	A	W	V	A	W		Hz	N.m	rpm	W	%	%	%	S
1	71.93	30.87	1534	56.53	102.6	1376	0.137	583.0	1.22	2955.0	377.5	89.7	27.4	24.6	0.000
2	71.93	30.87	1534	56.53	102.6	1376	0.137	583.0	3.90	2918.5	1192	89.7	88.6	77.7	1.516
3	70.20	157.1	10809	54.48	145.9	10572	0.788	531.81	34.90	2593.4	9476	97.8	89.6	87.7	4.516
4	70.20	157.1	10809	54.48	145.9	10572	0.788	531.81	35.58	2542.5	9511	97.8	90.3	88.4	5.016
5	70.20	157.1	10809	54.48	145.9	10572	0.788	531.81	36.70	2491.5	9574	97.8	90.6	88.6	5.516
6	70.20	155.9	10790	54.65	138.0	10587	0.811	499.58	37.38	2440.7	9552	98.1	90.2	88.5	6.016
7	70.20	155.9	10790	54.65	138.0	10587	0.811	499.58	38.40	2389.7	9608	98.1	90.8	89.0	6.516
8	70.20	155.9	10790	54.65	138.0	10587	0.811	499.58	39.26	2338.6	9613	98.1	90.8	89.1	7.016
9	70.21	154.9	10748	54.67	132.6	10562	0.841	468.39	40.08	2287.6	9600	98.3	90.9	89.3	7.516
10	70.21	154.9	10748	54.67	132.6	10562	0.841	468.39	40.82	2236.4	9511	98.3	90.1	88.5	8.016
11	70.21	154.9	10748	54.67	132.6	10562	0.841	468.39	41.96	2185.2	9600	98.3	90.9	89.3	8.516
12	70.21	156.0	10704	53.32	137.8	10489	0.824	437.33	43.04	2134.7	9620	98.0	91.7	89.9	9.016
13	70.21	156.0	10704	53.32	137.8	10489	0.824	437.33	43.92	2083.7	9582	98.0	91.4	89.5	9.516
14	70.21	156.0	10704	53.32	137.8	10489	0.824	437.33	44.88	2032.7	9552	98.0	91.1	89.2	10.02
15	70.21	158.8	10704	51.44	147.9	10431	0.792	405.56	46.00	1981.7	9544	97.4	91.5	89.2	10.52
16	70.21	158.8	10704	51.44	147.9	10431	0.792	405.56	46.86	1930.7	9472	97.4	90.8	88.5	11.02
17	70.21	158.8	10704	51.44	147.9	10431	0.792	405.56	48.22	1880.2	9492	97.4	91.0	88.7	11.52
18	70.21	158.8	10691	49.81	155.8	10383	0.773	374.37	49.48	1829.3	9477	97.1	91.3	88.6	12.02



QS 3000W 138 V3 IPM Mid drive motor with EM150-2

Dynamometer

## **E-bike Test Equipment: Chassis Measuring Equipment**

Max Speed Test

Acceleration Test ( 0~100m.00~100km/h )

Road Condition Test

Loading Testing

Wind Function





## Powertrain test on 2 wheelers & Road test

For prototype projects, SiAECOSYS could make road test include climbing test on mountains.





## Quality Control (Inspection of goods)

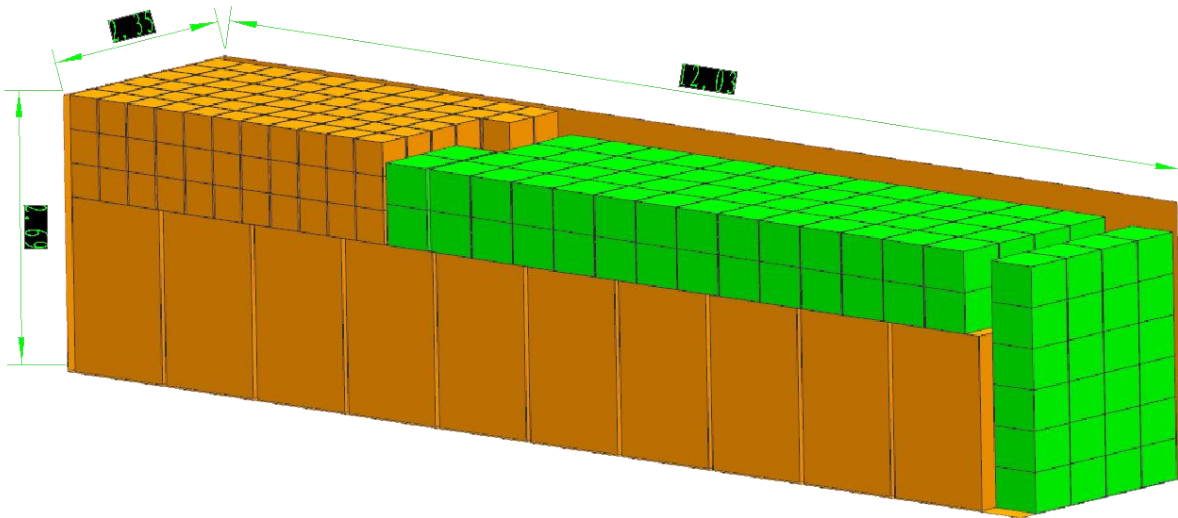
SiAECOSYS check every sample & mass production in spot check before delivery, to insure the good quality.





## Container loading calculations

For mass production, there might be various parts with different pack dimension (carton & pallet), SIA could make calculations base on package datas, to make full use of container for loading.





Laboratory

SIA has its own lab to make various tests, include salt spray test, UV aging test, rain test, vibration test.

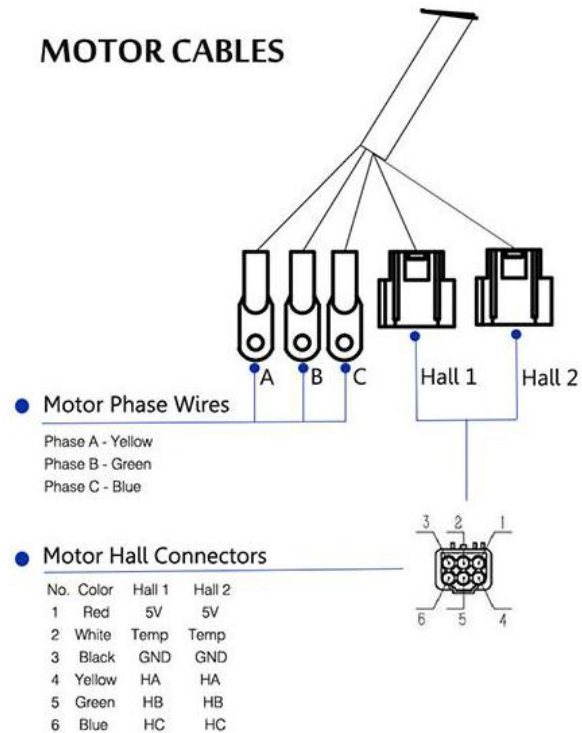


SIAECOSYS			
Box type UV rain test report			
			No.:XS2WX-004
Item		Product state	
Headlight		No scratches on the surface.	
Test Requirement			
UV+Rain	UV	Rain	Condensation
/	/	Test time: 24H, Test temperature: 22°C	/
Before testing			
			
After testing			
			
Test result			
No water leakage, fogging and other adverse phenomena, the test is qualified.			
编制人：林伟强		批准：孙鹤	

## After sale support

After sale is 2nd sale. Manuals & wiring made by SIA, e.g. motor manual and controller manuals.

### MOTOR CABLES



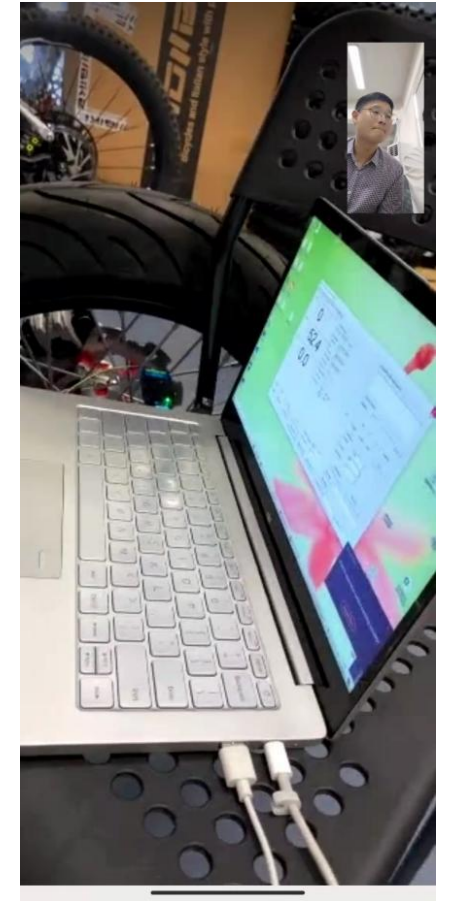
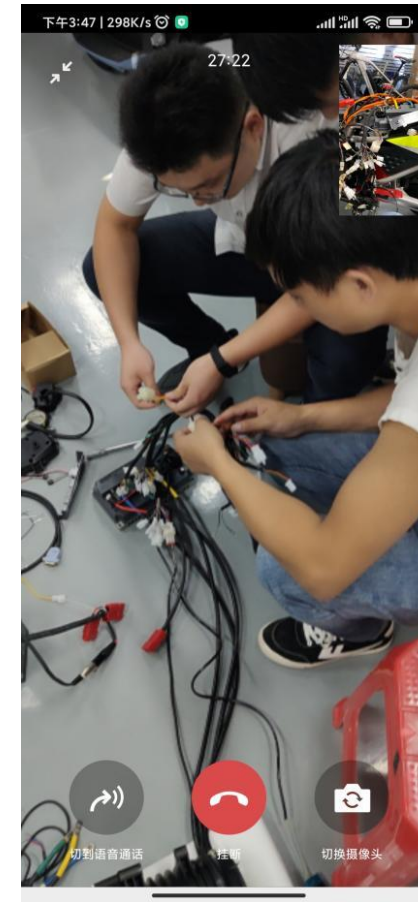
**For QS Motor Different Version:**  
 V1 with one Hall,  
 V2, V3, V4 with two Halls.(one hall for spare)  
 Note: power less then 1kw without temp sensor.



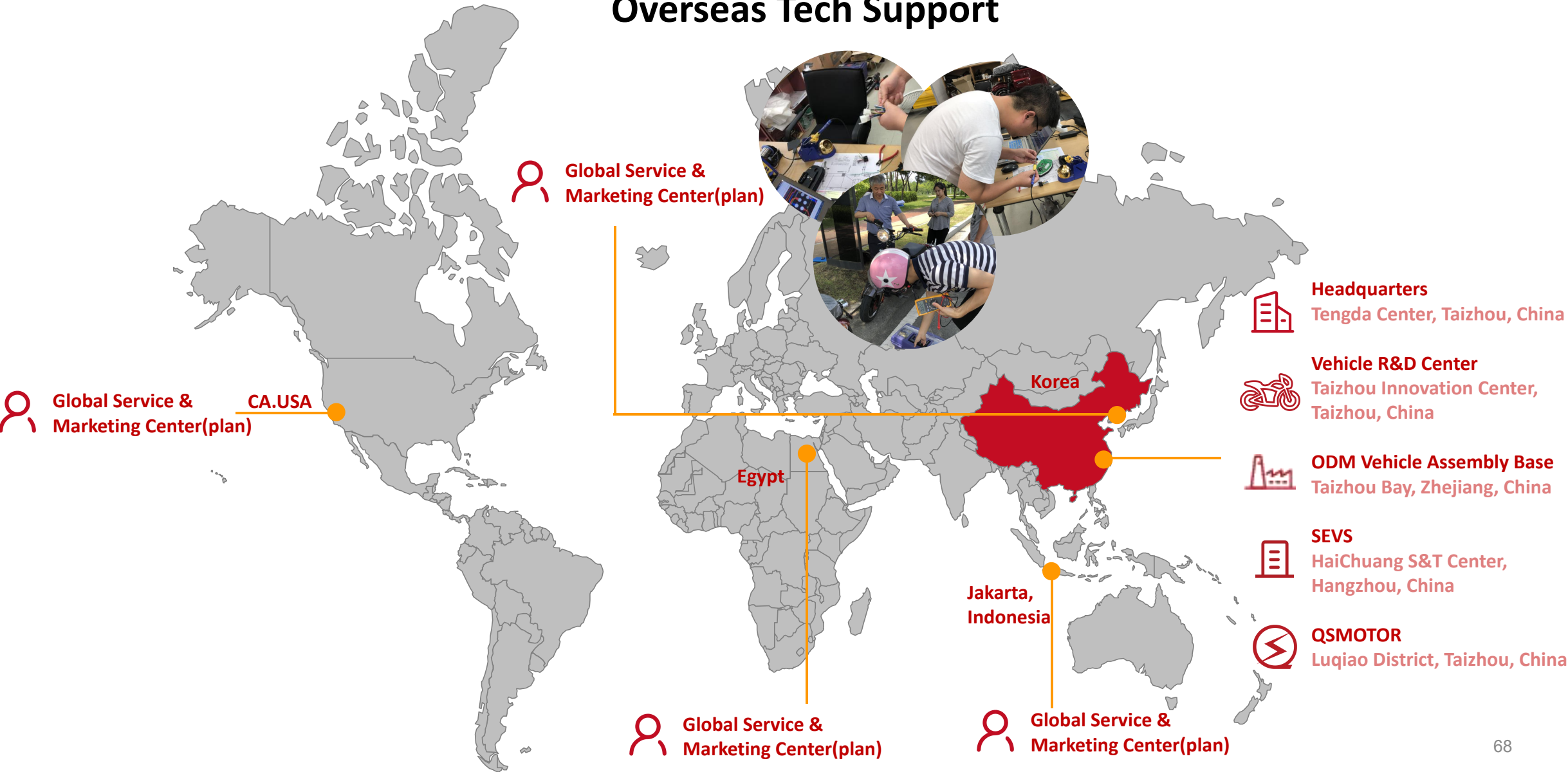
### VOTOL EM Controller Program Manual



## Remote Tech Support



Overseas Tech Support





# Exhibition(Demositc)



13th Taizhou Electric Vehicle Parts Exhibition



123th Canton Fair



CIMAMotor 2018



124th Canton Fair



CIMAMotor 2022



Steven Shi(GM) in round-table conference





**INTERMOT 2016**



**Saigon Autotech & Accessories 2017**



**Indian EvExpo 2018**



**EICMA 2019**



**EV Trend Korea 2019**



**China Homelife Indonesia 2023**



# Our Clients

## USA



SONDORS  
PREMIUM ELECTRIC BIKES

Ryvid

OXXEFIT



genZe  
by Mahindra

## Europe



isel®



SWINDRA  
A DIFFERENT FEELING

NÜWIEL

TREVOR



QULBIX®

## Asia



GESITS

scooterson



ZENTROPY



## Other

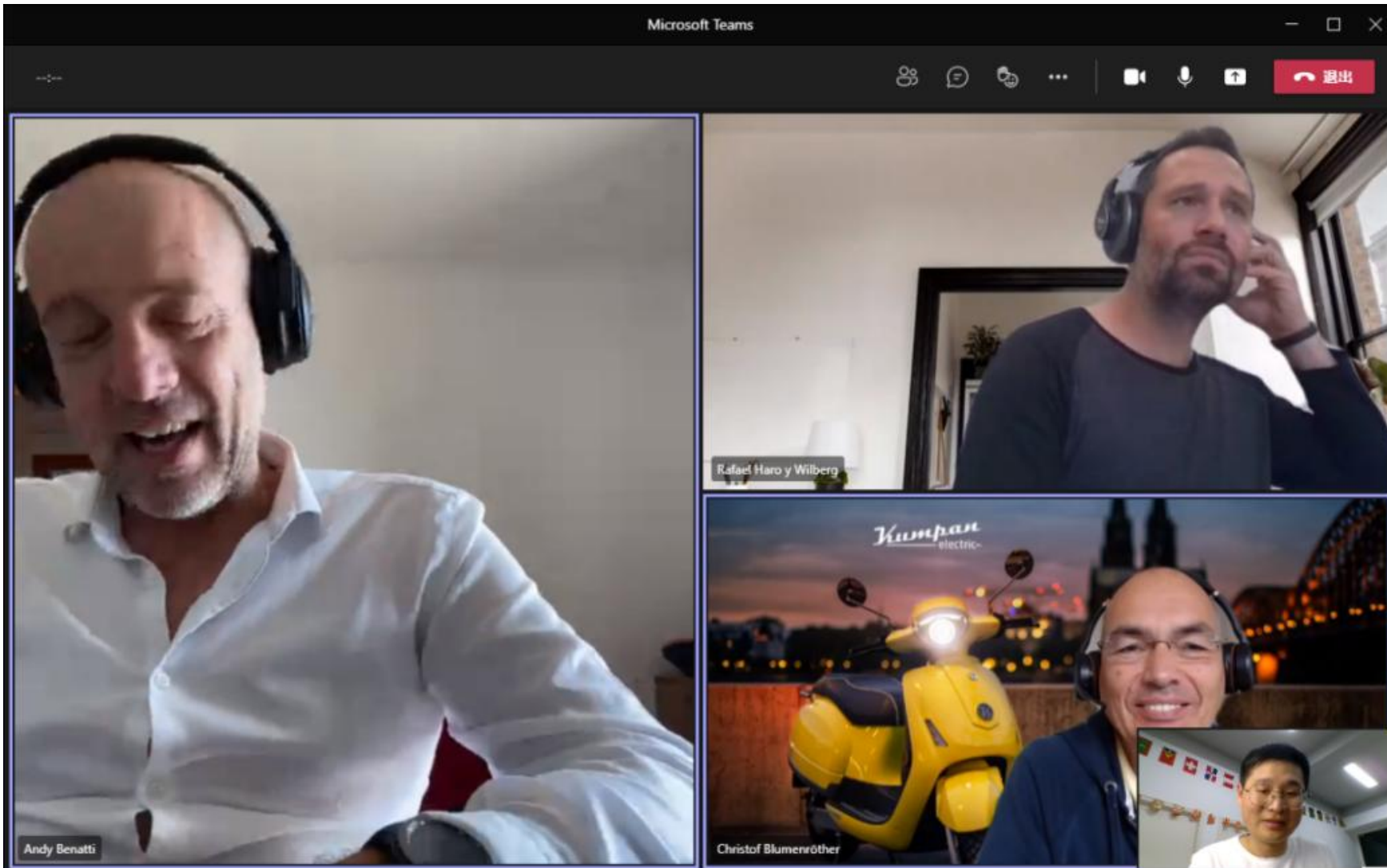








# On-line Meetings





## More Products, pls. check our website.



Official web: [www.siaecosys.com](http://www.siaecosys.com)



Official web: [www.cnqsmotor.com/en/](http://www.cnqsmotor.com/en/)

<https://www.aliexpress.com/store/5079180?spm=a2g1y.12024536.1000001.12.2f086d1fukyWH1>



<https://qsmotorfactory.aliexpress.com/store/1389549?spm=a2g0o.detail.1000061.1.14a415f5ZS9DGR>

<https://qs-motordrive.aliexpress.com/store/4393030?spm=a2g0o.detail.1000061.1.18f2715esBJvb5>

<https://tzxiya.en.alibaba.com/?spm=a2700.icbuShop.88.13.7bd67e01JBNEHc>



<https://qsdrive.en.alibaba.com/?spm=a2700.7756200.1998619056.7.739371d2WJWiOf>

<https://qsmotor.en.alibaba.com/>

<https://tzquanshun.en.alibaba.com/>



<https://www.amazon.com/s?marketplaceID=ATVPDKIKX0DER&me=A1DU8ODBU0RHHW&merchant=A1DU8ODBU0RHHW&redirect=true>



[https://endless-sphere.com/forums/search.php?search\\_id=egosearch](https://endless-sphere.com/forums/search.php?search_id=egosearch)



<https://www.facebook.com/siaecosys>



+86-0576-88551619



## Package(standard export packing)

- 1). Polyfoam box + carton box (for sample)
- 2). polyfoam box + carton box + wooden box (for special sample)
- 3). polyfoam box + carton box + pallet (for mass order)
- 4). Or according to customer's requirements.

## Shipping

- 1). Samples can be shipped by Express(like DHL, FedEx, UPS, EMS, TNT etc.), sometimes by sea and by air also optional.
- 2). Mass order can be shipped by sea and by air.
- 3). Pick the good from our factory.





## ·Producing Time

For standard product, we have some goods in store.

For other samples, it will takes 15-16 business days  
(6 business per week).

For customized samples, it takes 20-25 business days.

For special customized products, the lead time will be  
longer.

For mass production, it take approx 40-45 business days.

## ·Payment

Wire Transfer/TT, Money Gram,Western Union, Paypal

Generally, we prefer T/T, Money Gram,Western Union

100% in advance (for sample).



**Motor Warranty: 15months(since the date of producing)**  
**Other parts Warranty: 12months(since the date of producing)**

- 1). We only do after-sales service for the customers who buy products from us directly, not from other agencies.
  - 2). Warranty period for motor and other parts: 15 months (since the production time)
  - 3). If any after-sales issue, pls. contact us with detailed pictures or videos, we will reply you with reasonable solutions once we confirm the issue.  
  
E.g: if there is quality issue for our products when you received and confirmed by both parties, we will send you free accessories or whole motor on your next order. If the products damaged during shipping, pls.contact us and Express within 24h, then we will send you new one for free.
  - 4). Destructive test/abusing usage due to test purpose, we could not do after-sale issue for free.
- Your feedback is very important for us, not only positive feedback but also negative; we try our best to satisfy you as much as possible. Meanwhile, if you are satisfied with our products, your five star feedback online would be highly appreciated.



# SiAECOSYS Team







THANK YOU!

3.3KW OBC  
+1.0KW DC