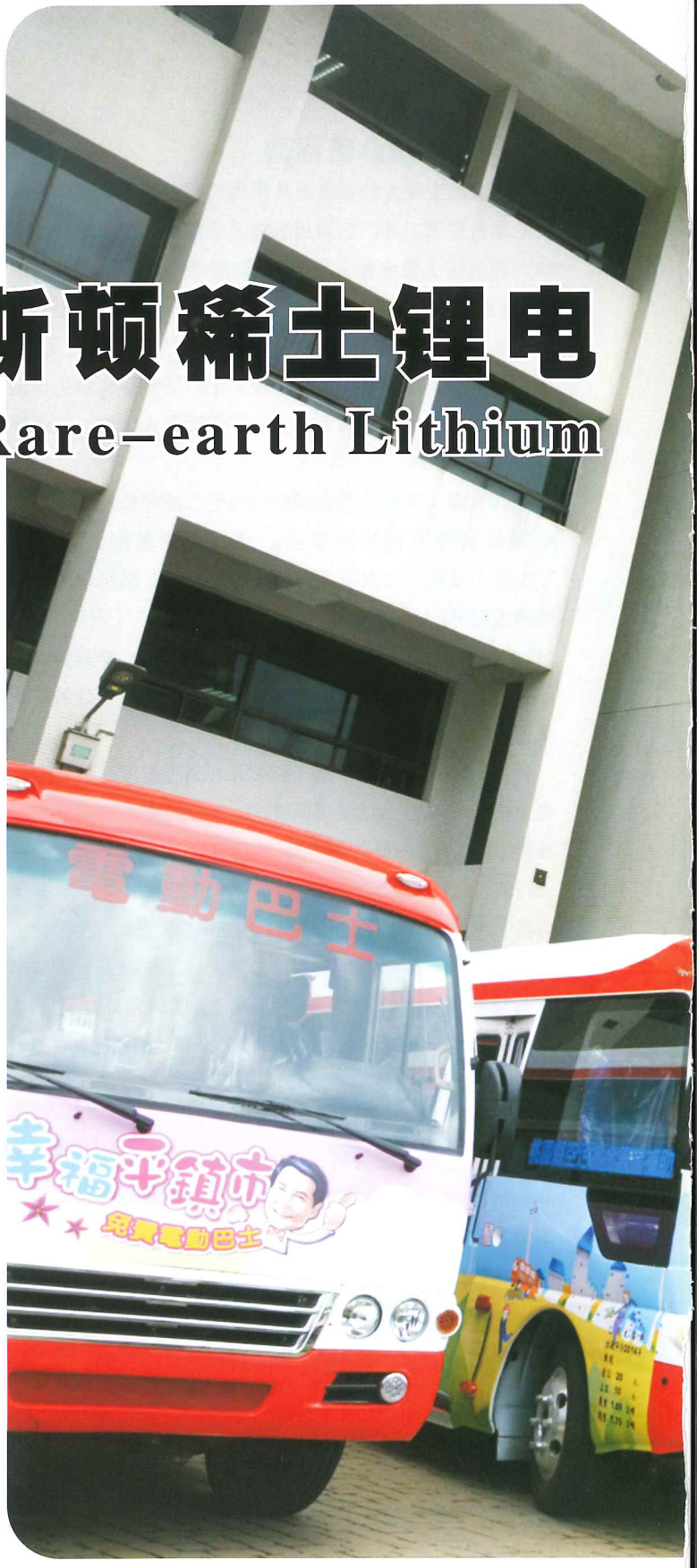
台湾欢迎温斯顿稀土锂电

Taiwan: Winston Rare-earth Lithium

文/慕容小凤TEXT/XIAOFENG MURONG



凭借强劲的动力和安全稳定的性能，温斯顿电池在世界各地攻城略池，大受欢迎，出口世界100多个国家和地区，在许多重大场合成为“定海神针”，在世界产生广泛的影响。

桃园再添18辆市民电动巴士

5月15日，台湾桃园县长吴志扬在环保局长陈世伟陪同下主持18辆电动巴士启用典礼，中坜市长鲁明哲、平镇市长陈万得、县议员邱素芬、陈美梅、谢彰文、叶傅淑香等人及多位市民代表都到场共襄盛举。

此次，中坜市和平镇市共同采购18台电动巴士市民公车，除有低底盘、低噪音、安稳优点外，更重要的是零排放，解决污染、黑烟问题。

桃园县目前除现有10条电动公车行驶路线，包括：捷运绿线10辆、桃园市及中坜市区公车12辆（5条路线）、大溪镇2辆（3条路线）、桃园县府往返火车站3辆，行驶全县电动巴士数量已达27辆外，加上中坜市和平镇市新增的18辆免费市民公车，全县电动公车的数量总计达45辆，居全台湾之冠。

桃园县的免费电动巴士，零污染，安静舒适，获得9成5以上民众的支持。

池装备桃园45辆电动巴士

BatteryUsed in 45 Electric Buses at Taoyuan

电动巴士使用温斯顿动力电池

与之前的27辆电巴一样，这18辆电巴同样来自华德动能科技股份有限公司，该公司是全台湾唯一生产并商业化电动巴士的厂商，在台湾新北和新竹等地市有多辆实际营运的电巴。

事实上，华德动能有宏大的公共汽车电气化战略规划，已经铺开电动大巴、中巴的运营，下一步将对小巴和出租车电动市场进行开发。这除了自身过硬的整车技术，与温斯顿联手，使用温斯顿电池作为动力源是其能够在台湾立足的主要原因之一。无论是在路试还是在实际使用吧，温斯顿电池都显示出强劲的动力和稳定的性能。

当初高雄客运公司向华德公司订购纯电动大巴时，提出非常苛刻的交车条件，电动大巴从华德公司桃园生产基地直接开到高雄客运公司，路上不能充电，如果能顺利到达就接收，否则华德自己拉回去。为此，华德先期进行了严格的预演试验，电动大巴途经“国道”1号高速公路→“国道”8号高速公路→“国道”3号高速公路→再转“国道”10号高速公路，经过7小时的行驶，成功到达目的地高雄汽车客运公司旗山站。航程320.1公里，共耗电194.647Kw(71%)，换算每公里耗电0.609Kw)，尚余残电27.826Kw(10%)，如用残电约可再续行驶45.6Km。

这次试行，华德动能电动大巴以超过同业2倍有余的续航力，震撼业界。

稀土锂电池受世界欢迎

华德动能的电动巴士绿色心脏皆来源于温斯顿提供的大容量稀土锂电池。而稀土锂电池发明人钟馨稼先生被业

With the strong power and safe and stable performance, Winston batteries are popular in the world. They have been exported to more than 100 countries and regions. In many applications, they play a key role, thus producing a wide range of influence in the world.

18 Electric buses added in Taoyuan

May 15, Taoyuan county magistrate Wu Zhiyang who was accompanied by environmental protection bureau chief Chen Shiwei presided over the opening ceremony for the use of 18 electric buses. Relevant leaders and celebrities attended it, including Lu Mingzhe mayor in Zhongli, Chen Wande mayor Pingzhen, county councilmen Qiu Sufen, Chen Meimei, Xie Zhang, Ye Fu Shuxiang and etc.

At this time, Zhongli and Pingzhen jointly bought 18 public electric buses, which feature low chassis, low noise, and safe and stable performance and can solve the problems such as zero emissions, pollution, black smoke and etc.

Taoyuan County at present now has 10 electric bus routes, including: 10 buses of Green Line; 12 buses in urban areas in Taoyuan and ZHongli (5 lines); 2 buses in Daxi Town (3 lines); 3 buses from Taoyuan government site to railway station. New 18 electric buses run in Zhongli and Pingzhen are free from charge for residents. In a word, Taoyuan has a total of 45 electric public buses, ranking No.1 in Taiwan.

Taoyuan County provides the free-of-charge service for residents via electric buses featuring zero pollution, quietness and comfort. This is supported by 95% residents.

Winston Power Battery in these electric buses

Like previous 27 buses, these new 18 electric buses are also from Huade Kinetic Energy Technology. This company is the only provider in Taiwan in electric buses. It has a lot of products used in Xinbei and Hsinchu and other cities of Taiwan. In fact, Huade Kinetic Energy Technology has its strategic planning in buses electrification. It has entered the operation in electric buses and minibuses. The next step, it will develop the market in the taxi market and so forth. With its own vehicle tech, it cooperates with Winston. This is one of reasons why Winston can be successful in Taiwan in the power battery market. Both in the road test and in the actual use, Winston battery shows strong momentum and stable performance.

When Kaohsiung Passenger Transport Company ordered pure electric buses from Huade, company pure electric bus, the very harsh conditions were put forward. That is, these electric buses should directly run to the transport company without a charge in their way. If successful, then they would be accepted. For this, Huade did the strict pilot. These new buses ran for 7 hours

界称为“电池大王”，从事电池研究已经近30年。其研发的稀土锂电池最大特点就是单体容量大，目前已形成40安时至10000安时系列产品；安全性能高，在各种滥用环境下，甚至枪击都不会爆炸；大电流充电不影响电池使用寿命；工作温度宽，在零下40度至零上85度范围可正常使用；一致性好，钟先生自己设计的自动生产工艺简洁易行，解决了电池一致性的问题；绿色环保无污染，由于使用特殊工艺——水性粘结剂，稀土锂电池完全是无毒无害的绿色电池，且可以实现回收再利用。

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如迪拜超级巴士采用温斯顿单体大容量稀土锂电池，可输出530制动马力，最高时速达155英里，约合250公里。乘客搭乘这样的“超级巴士”，等于坐在豪华轿车或私人飞机一样。

2009年，美国重型卡车业领航者贝尔肯与温斯顿合作，使用700AH及1000AH单体大容量稀土锂电池装备重卡，快速充电不超过1小时，载重30吨，续行能力达到150英里以上。

2010年，英国伦敦帝国学院电子工程和机械工程系的一群具有伟大理想的学生，成立“绿色耐力赛车”（RGE）项目，与英国激进跑车公司合作，采用温斯顿稀土锂电池，装备纯电动跑车“SR-Zero”，于当年7月3日，以美国阿拉斯加州的普拉德霍湾为起点，穿越美洲的泛美洲公路，途经14个国家，80多天后抵达阿根廷的乌斯怀亚终点，全程26000公里。

2011年开始，KRYSTAL生产的纯电动校车，核定载员36人，有两个轮椅位，使用温斯顿312Kwh稀土锂电池组作为动力源，一次充电（快充1小时内，慢充6小时内）满负荷续行175英里以上，被美国指定为可上牌行驶的校车专用车。

2012年，第41届达喀尔拉力赛上，拉脱维亚奥斯卡车队驾驶的增程式电动赛车OSCareO由温斯顿提供电池，在8400公里的赛程上纵横驰骋，顺利抵达终点秘鲁首都利马，震惊世界！这是达喀尔拉力赛历史上第一辆绿色赛车。等等。

2014年生产订单已经排满。

along the way: National Way No. 1 to National Way 8 to National Way 3 to National Way 10. With the mileage of 320.1km, these new buses successfully reached the buyer’s site. Total power needed was 194.647Kw (71%), equivalent to 0.609 Kw per kilometer. Residual power was 27.826 Kw (10%), which could enable them to run about 45.6 Km.

In this trial, Huade electric buses were leading in mileage and shocking the industry.

Rare earth lithium-ion batteries popular with the world

Winston provides large capacity rare earth lithium-ion batteries in these new buses. The inventor of these rare earth lithium-ion batteries is Mr. Winston Chung. He has engaged in battery research for nearly 30 years. For rare earth lithium-ion batteries, the monomer capacity is large. At present, they have formed serial products of 40 to 10000AH. Features include safe performance, safe use in all kinds of conditions (even shooting will not cause explosions). The large current charge does not affect battery life. The wide working temperature is around 40 degrees below zero to 85 degrees above zero. They have good consistency. The automatic production process is concise and easy, solving the problem of the battery consistency. They are pollution-free. Due to the use of special technology i.e. water-based adhesive, rare earth lithium-ion batteries are non-toxic and harmless and recyclable.

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Dubai super bus also uses large capacity batteries from Winston. These batteries can provide 530 horsepower and enable the bus to run 155 miles (about 250 kilometers) in max. When passengers aboard the super bus, they will have a very good feeling.

In 2009, Winston cooperated with BALQON as a leader in the heavy truck industry of the USA. 700 AH and 1000AH monomer rare-earth lithium batteries from Winston were used in the trucks. These products were no more than 1 hour in quick charge, 30 tons in weight and could let the trucks continuously drive more than 150 miles.

In 2010, a team of student from departments of mechanical engineering and electronic engineering at Imperial College London set up a RGE project in which they cooperated with a British sports car firm. The sports car created by them used Winston rare earth lithium-ion batteries. This electric sports car was named SR - Zero. On July 3, 2010, it ran from Alaska Prudhoe Bay through Pan-American highway (across 14 countries) to Ushuaia, Argentina. This course taking more than 80 days was 26000 km long.

At the beginning in 2011, KRYSTAL’s pure electric bus seated 36 persons and provided two wheelchairs. It used Winston 312 KWH rare-earth lithium battery as a power source. After a charge (less than 1 hour in quick charge and less than 6 hours in slow charge), the bus could continuously drive more than 175 miles at a full load and was designated by the United States as a school bus vehicle.

In 2012, in 41st Dakar Rally, Latvia Oscar Team’s OSCareO electric car used Winston batteries and showed the excellent performance in 8400km race. It shocked the world. This is the first green car in the history of Dakar Rally.

In 2014, production orders have been full.

微型迷你电车 或成未来主流

Mini electric vehicle may be the mainstream in the future

文/ 尉和顺 Text / Wei Heshun

目前，中国面对人口众多、大规模城市化、城市人口密度加大、汽车大普及、汽车保有量增长、停车位紧缺与道路拥堵等等情况,人们行走是一个亟待解决的现实课题。

汽车难对三大制约因素

当下,汽车受到占地、能耗、污染等三大因素制约,进退维谷,发展受限.

其一，汽车占地问题。当前，大城市家庭汽车存在着大量空间浪费，一辆普通汽车的占地面积达到8-10平米左右，而这些汽车大多被用于单人短距离出行。当城市汽车容量接近饱和状态时，汽车本身空间资源的浪费就会突现出来,大城市倡导占地3-5平米的微型车非常必要。日本和欧洲的城市大部分人口众多，街道狭窄，微型车已经成为主流。

其二，汽车能源消耗。大排量的汽车油耗高，污染大,当今面临石油严重紧缺，油价高企，政府应该通过政策鼓励使用低能耗的微型汽车势在必行。目前,在日本与欧洲市场，主流车型基本都是排量小能耗小的小微型汽车。

At present, China in the face of increasing density of population/mass urbanization, the urban population expansion/car popularity/car ownership/shortage of parking space and road congestion and so on, people walking is a realistic issue to be solved.

Three difficult factors which influence the car to face

At present, car covers, energy consumption, pollution and so on three big factors, which in the dilemma place, limited development.

First/car covers issues. At present, there are a lot of big cities family car with space waste, an ordinary car covers an area of 8 to 10 square meters or so, and most of these vehicles to be used in a single short distance travel. When city car capacity close to the saturated state of the car itself space resources waste will be apparent, big cities advocating covers an area of 3-5 square meters mini car is very necessary. Japan and Europe's most populous cities, narrow streets, mini cars had become the mainstream.

Second/automobile energy consumption. The large displacement car fuel consumption, high pollution, today facing a serious shortage of oil, high oil prices, it is imperative for the government should encourages the use of low energy consumption through policy of the micro car. At present, in Japan and the European market, the mainstream models are basically small displacement energy consumption of mini car.

Thirdly/automobile exhaust pollution. Gas-guzzling cars emit more waste gas. Air pollution in China has entered the overall period, how to

其三，汽车尾气污染。高油耗汽车排放更多的废气。中国目前已经进入全面空气污染期，如何通过降低汽车排放，减轻污染源，也是重中之重。

在占地、能耗、污染等三大制约因素是汽车工业发展战略的大背景。我国汽车工业的发展也要紧紧把握这个大趋势，不能背道而驰。

电车难于逾越的障碍

电动汽车因为成本、能耗、污染等各方面都表现比较优异，成为各国努力推进的方向。电动汽车采用了电机直驱模式，免去了发动机和传动装置，具备结构简单，可靠性高等特点。电动汽车通过电池驱动电机提供动力，安全性高，不排污染物，而且电力能源价格更加低廉。然而,电动汽车产业也存在诸多难于逾越的障碍：

其一，电池能量密度较低。廉价蓄电池的储能性能比较低，续航里程太短，增加电池数量不仅会增加汽车重量，还会大幅增加汽车成本。储能性能高的电池又成本太高，难以大规模普及。

其二，电池充电时间较长。加油最多只需要十几分钟，电动汽车充满电需要十多个小时，采用更换蓄电池模式又面临电池规格统一的难题。

目前电车的三种类型

其一，土豪型。土豪型电动汽车以美国特斯拉汽车为

reduce car emissions, reduce pollution, it is also a top priority. In the three factors which influence the covers, energy consumption, pollution and so on are the background of the auto industry development strategy. The automobile industry development in China is also want to grasp this trend, which can't run in opposite directions.

Trams is difficult to overstep obstacles

Electric vehicles because of cost, energy consumption, pollution and so on various aspects performance are excellent, became the various countries' efforts to advance direction. Direct driving the motor of

代表，这种电动汽车与节能环保没有任何关系，运用最好的蓄电池制造出价格高昂、动力强劲的超跑电动车，卖给富人做玩具，一般价格都在人民币50万以上。

其二，传统型。选用市场价在十多万元的中小型轿车平台，选用锂电池、镍镉电池或磷酸铁类电池做能源，续航里程在一百公里左右，价格基本在20万以上，这种电动汽车目前是主流汽车厂家主推的电动车型，但是价格与使用配套问题依然是巨大障碍。

其三，微小型。采用市场价在3-5万元之间的微型车平台，利用价格低廉的铅蓄电池，功率在十几千瓦左右，最高时速六七十公里/每小时，续航里程在80公里左右，价格不超过十万元；采用锂电池的车型功率在三十千瓦左右，续航里程在一百公里左右，零售价价格达十几万。

但是这些电动汽车依然存在一个问题，要不就是价格便宜电池太少续航里程比较短，要不就是电池够用续航尚可价格比较贵，都面临难以大规模普及的难题。

可以看出，在目前的科技水平下，很难开发出和常规汽车一样体积重量同样售价同样便利的电动汽车。我们需要在“汽车大小”、“汽车价格”、“续航里程“这三个战略因素之间重新做取舍，整合一套全新的思路去做适合民众使用的电动汽车。

未来电车的一种方案

未来电车应该在保证2人乘坐空间的前提下,尽量减小汽车体积和重量，保证一次充电不低于100公里的行驶里程，售价不高于传统汽车，同时可以配备汽油增程器作为备用能源实现不间断续航。这种技术路线可望电动汽车在中国市场快速普及。

用微型汽车来满足城市人上下班等日常需求，以容纳1-2人为主，体积尽量小（奔驰Smart可以作为标准参照），采用高强度轻量化材料，同时保证较高的安全性。

electric vehicle model, from the engine and transmission device, has simple structure, high reliability, etc. Electric vehicle powered by battery-powered motor, high safety, not discharge pollutants, and electricity prices are lower. However, the electric vehicle industry also has many difficult barriers to be overcome:

Firstly/battery energy density is low. Cheap battery energy storage performance is lower, the range is too short, to increase the number of the battery will not only increase the car weight, will greatly increase the cost of cars. High energy storage performance of battery and the cost is too high, difficult to place a large scale.

Secondly/battery charging time is longer. only need ten minutes for charging, the electric vehicle charge need to be more than ten hours, adopt the replacement battery mode and unified problem facing the battery specifications

Two constraints determine the development direction of the electric vehicle:

At present three types of electric vehicle

Firstly/local tyrants. Local tyrants type electric vehicle, represented by the United States Tesla motors, the electric vehicle doesn't have anything to do with energy conservation and environmental protection, using the best battery producing high prices, powerful supercar electric vehicle, making toys to sell to the rich people, half price is about in 500000 yuan.

Secondly/traditional. Choose the market price in more than ten thousand yuan platform for the small and medium-sized cars, use lithium batteries, nickel cadmium battery or phosphoric acid iron battery energy, range at about one hundred kilometers, basic price is above 200000, the electric vehicle is the mainstream of car manufacturer of electric vehicles, but the price and the use equipment are still big obstacle to overcome.

Thirdly/microminiature. Using the mini platform car of the market price in 30000- 50000 yuan, using the low price lead battery, power in 10 kw, a top speed is 60 km/hour, range at about 80 kilometers, the price is not more than one hundred thousand yuan; Using the models of lithium-ion batteries in 30 kw power, range at about one hundred kilometers, retail price is about ten thousand yuan..

But these electric vehicles still remain a problem, or too little cheap battery range is shorter, or enough battery life to fair price is more expensive, are facing the difficult problem of large-scale popularization.

It can be seen that under the current level of science and technology, it is difficult to develop the same volume weight and conventional car prices also convenient electric car. We need to "size", "price", "range" to

采用磷铁电池甚至铅酸电池等中等容量价格适中的蓄电池，充电不超过8小时，最高时速不低于60公里/小时，经济时速在40公里/小时左右，电池续航里程在100公里左右，同时配备采用“备用小油箱+汽油发电机”作为增程器为蓄电池供电，甚至可以不限里程续航。其零售价格控制在2-3万元左右，价格要比传统的微型车更便宜。

这样,汽车价格比较低廉，适合普通大众购买，因为体积较小，停车与行车中占地面积都不到常规汽车的一半，因为重量轻能耗低，续航里程长，能够满足绝大部分的单/双人日常出行需求。

该类电动汽车在日本已经十分流行，在东京等大都市，迷你型电动汽车已经成为白领上班的时尚之选。

在中国，迷你型电动汽车因为价格低廉使用方便，深得广大三/四线城市居民的喜爱，一些城市甚至出台地方政策，给电动汽车颁发牌照准许上路，迷你电动汽车的民间自发销售量已经远超传统大型电动汽车，随着制造工艺的进一步提高，成本会进一步下降，迷你电动汽车会逐渐受到中心城市居民的青睐，市场空间还会进一步扩大，具有巨大的发展空间,还会有更加光明的发展前景。

make trade-offs between the three strategic factors, integrating a new train of thought to do suitable for public use of electric vehicle.

A scheme of electric vehicles in the future

Future trolley should be on the premise of guarantee 2 people aboard, to decrease the volume and weight of the car as far as possible, ensure that not less than 100 km on a single charge mileage, price is not higher than conventional cars, at the same time can be equipped with gasoline extender as spare energy to realize continuous range. The technology route is expected to electric vehicles in the Chinese market rapid popularity.

Use of micro and subcompact cars to meet the commute daily demand of urban people, mainly aboard for 1 to 2 people, as small volume as possible (mercedes-benz Smart can be used as a standard reference), high strength, lightweight materials and guarantee the high safety. Using phosphorus iron battery or lead acid batteries and other secondary battery capacity price moderate, charge no more than 8 hours, a top speed of not less than 60 km/hour, the speed of 40 kilometers per hour, the battery range at about 100 kilometers, with the "backup small tank + gasoline generators" as extender for battery power supply, can even unlimited mileage range. Its retail price control in 2-30000 yuan, the price is cheaper than traditional subcompact.

In this way, the car price is quite cheap, suitable for ordinary people, because of the smaller volumn, parking and traffic area are less than in half of conventional cars, because of light weight low energy consumption, long range and can meet most of the single/double daily travel demand.

The electric vehicle has been very popular in Tokyo metropolis in Japan, such as miniature electric vehicle has become a fashionable choice for white-collar workers.

In China, the miniature electric vehicle because of cheap price and easy to use, which is deep loved by the three/four line of the urban residents, some cities even issue local policy, licences for electric vehicle to allow running on the road, mini electric car sales have far beyond the traditional folk spontaneous electric vehicle, as the manufacturing process to further improve, the cost will fall further, mini electric vehicle will gradually get the favour of center city dwellers, will further expand the market space, with a huge space for development, there will be a brighter prospect.