tkt EV solution

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Battery Guard

Leading the future

Battery Thermal Management System

Intelligent Temperature Control/ Integrated Design/ Lightweight

www.busthermo.com

TKT GROUP

Established in 2010, TKT is a leading manufacturer and supplier in the field of EV Thermo Control System and Charging System solutions.

As a trusted partner to global automotive manufacturers like BYD, Tata Motors, Marcopolo, Daewoo, Isuzu, Yutong, Switch Mobility, Neoplan, and INCARVEN, TKT offers OEM services, customized solutions, and excellent after-sales support.

TKT is an ISO 9001:2015 and IATF 16949:2016 certified facility with over 210 patents for automotive components and systems, along with CE, EMI/EMC certifications for our key products.

Looking ahead, TKT remains committed to innovation, sustainability, and delivering cutting-edge solutions that shape the future of EV Thermo Control System and Charging System.

135+
Professional team

100+
Patents

10+
Production Experience

3+
Factories

2010-2014
Technological Foundation

• Established expertise in R&D, manufacturing, and global sales of vehicle AC systems, laying the groundwork for specialized capabilities.

2014-2016
Strategic Expansion

• Scaled operations with elite talent acquisition
• Upgraded product portfolio achieving breakthrough recognition in international markets

2016-2019
Global Infrastructure

• Founded Indian subsidiary with localized manufacturing base
• Deployed worldwide service network to support cross-continental operations

2019-Present
Innovation Acceleration

• Strategic Partnership: Collaborated with BYD to co-develop cutting-edge technologies
• Production Scale-up: Launched facilities in Hainan/Shenzhen (China), Sri Lanka, and Luoyang manufacturing hub
• Tech Leadership:
• Expanded EV charger R&D team with dedicated innovation unit
• Commissioned automated charging station production line
• Accelerated global market penetration for EV charging systems & critical components



TKT EV SOLUTION

Development Future

The Future of Electrical Technology

Electric Vehicles -- Market Trends

Protecting the environment is a growing global concern. Commercial vehicle manufacturers around the world are looking for alternative drive vehicle solutions, most importantly purely electric vehicles. To ensure safety and extend the life of the vehicle's batteries, the powertrain and energy systems must operate under optimal thermal conditions. Batteries should operate in a temperature range of 20 to 45°C. If they get too hot, they begin the electrochemical aging process. If they are operated at temperatures below 20°C, performance will be significantly reduced.

BTMS--Develop and Apply according to Market Demand

Today, based on the market demand for electric commercial vehicles, TKT started researching and designing Battery Thermal Management System (BTMS) in 2012. In the battery cooling system keeps the battery pack temperature in the right range to maintain longer mileage and service life. We call it eBTM. In general, an effective battery cooling system is necessary to ensure battery life and performance. To meet these challenges, TKT has developed a range of products to address these issues, enabling each component to operate under optimized thermal conditions, extending service life and increasing efficiency.



Liquid Cooling Advantages

Adjust Battery Temperature -(15℃～35℃)

Electrical products generate heat when they work, and this heat is harmful to the electrical components in the power system. Traditionally, air has been used to remove the heat.

Now there is a better way to remove heat is to use coolant cooling. The process here is also simple. The heat source has a radiator or a component that can be cooled with liquid. Cold liquid is circulated to the heat source and the heated liquid is pumped out and cooled with a water-to-water heat exchanger or a water-to-air cooler. A liquid cooling system requires a piping system, pumping station and a water-water heat exchanger or water-air cooler unit.

High efficiency

Actually the specific heat capacity of water is better than that of any other fluid or gas on earth. Liquid transfers heat more efficiently because of this.

Air 1.0 J/(kg·K) | Liquid 3.6 J/(kg·K)

Save Energy

The difference in the electrical energy consumption isstriking big : the liquid cooling requires less than 10% of the electrical energy of the comparable air cooling system.

Air 202 Mwh | Liquid 15 Mwh

Quieter

Liquid cooling is less noisy, allowing for a more comfortable environment. 10 dB increase in noise level practically doubles the amount of noise .

Air 78 dB | Liquid 69 dB

Small size

Liquids have a better heat capacity than air and can therefore be designed with smaller pipe/element sizes.

Air m^3 | Liquid m^3

Working principle

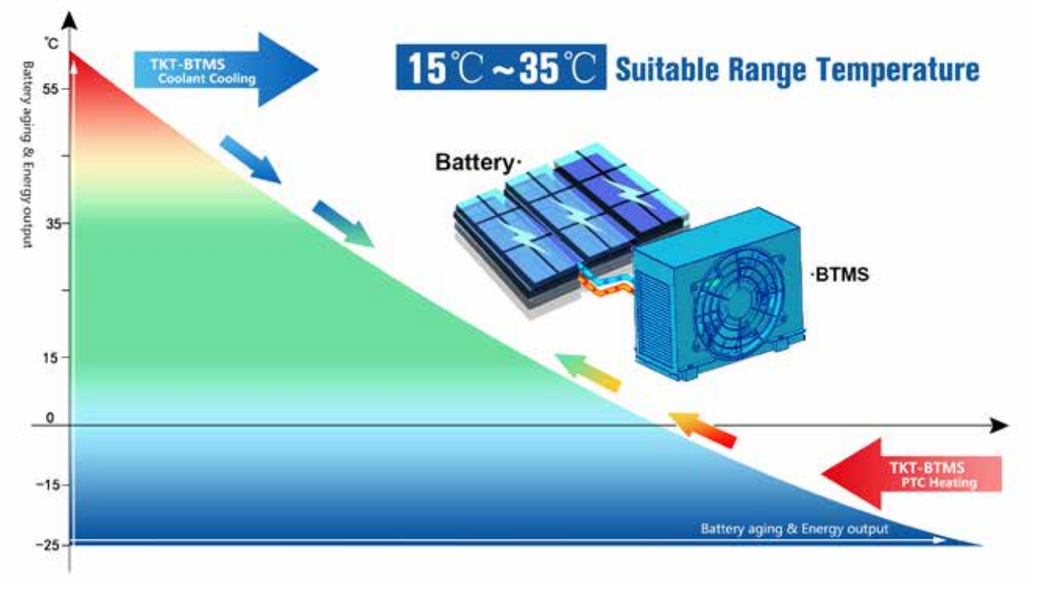
Adjust Battery Temperature -(15℃～35℃)



Keep the Battery at Suitable Range Temperature

TKT BTMS regulates the battery temperature to keep it in the optimal range for operation, thus stabilizing the battery performance and extending its service life

BTMS Temperature Regulation Process



Product Parameters

Product Parameters

3kW TKT BTMS Solution

TKT-BCS3-R <<<



5kW TKT BTMS Solution

TKT-BCS5-CW <<<



6kW TKT BTMS Solution

TKT-BCS6-R <<<



8kW TKT BTMS Solution

TKT-BCS8-R <<<



10kW TKT BTMS Solution

TKT-BCS10-CW <<<



Product Model	TKT-BCS3-R	TKT-BCS5-CW	TKT-BCS6-R	TKT-BCS8-R	TKT-BCS10-CW
Refrigerant	R134a	R134a	R134a	R134a	R134a
Capacity	Cooling: 3KW~4KW Heating:1kw~2kw (Optional)	Cooling:5KW-6KW Heating: 3kw (Optional)	Cooling:6Kw	Cooling:8Kw Heating: 10Kw (Optional)	Cooling:10Kw Heating: 6Kw (Optional)
Customized	Dimension/ Cooling/ Heating ect.	Dimension Cooling Heating ect.	Dimension/ Cooling	Dimension/ Cooling/ Heating ect.	Dimension/ Cooling/ Heating ect.
Voltage	240-750V	240-750V	350-750V	400-750V	400-750V
Flow	45-75L/min	45-75L/min	25L/min	45-60L/min	45-75L/min
Weight	25KG	32KG	70 KG	40 KG	40 KG
Dimension (L*W*H)	587*355*242mm	618*350*392.5mm	1940*1066*292mm	936*438*287mm	780*430*380mm
Installation Location	Top-mounted	Side-mounted	Top-mounted	Top-mounted	Side-mounted
Control Power (V/A)	DC12V15A or DC24V12.5A	DC24V15A or DC12V110A	DC24V3A	DC24V3A	DC24V110A or DC12V120A
Application	Electric Bus / Trailer / Heavy Equipment / Municipal Vehicles / Ground Support Equipment / Electric Boat				

01 TKT BTMS Solution

TKT-BCS3-R <<<

Based on the long-term accumulation of professional design team and production-team, we precisely develop demand products for each customer

The unit is designed on the roof, It is mainly used in electric vehicles, such as electric buses, trucks, electric sanitation vehicles, and heavy-duty electric equipment vehicles.

The adoption of CAN bus communication enables it to have the function of faultself-diagnosis and real-time uploading of operating status and fault information.

Cold-rolled steel plate electrophoresis + powder coating process: ultimate rust prevention, corrosion resistance, ultra-high efficiency and environmental friendliness.

Passed vibration testing； EMC can meet Level III requirements.

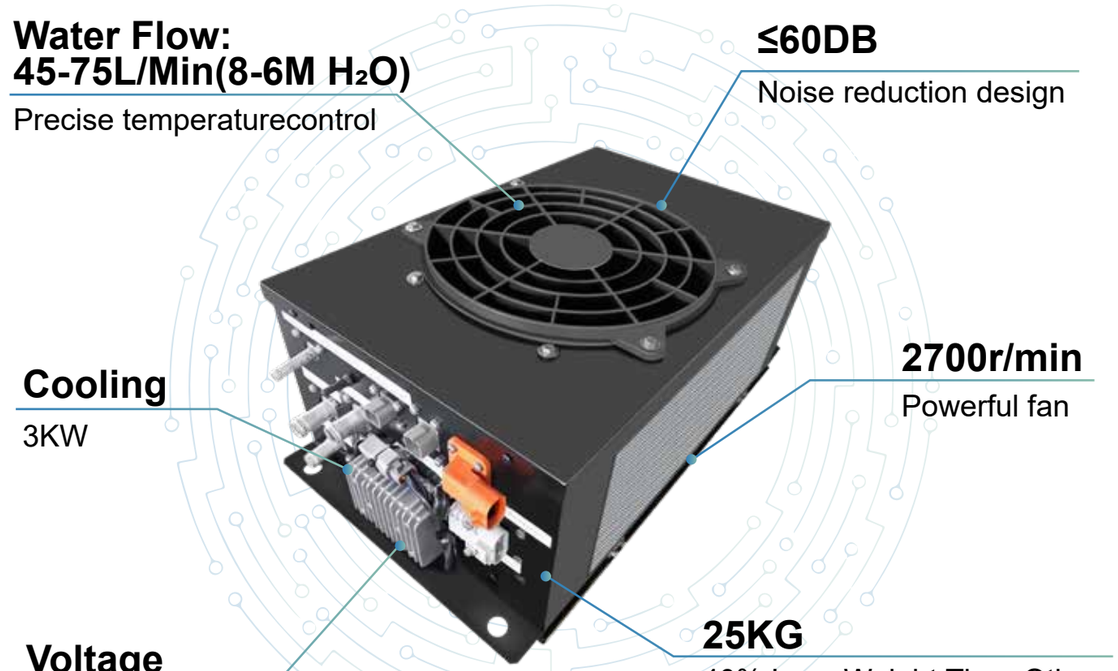
Optional PTC liquid heater allows for selection of standby, with cooling, heating,and self-cycling working modes.

Strong environmental adaptability: it can meet the operating requirements of harshconditions such as high and low temperatures, high corrosion, and high altitude.

Product Application



Adjust Battery Temperature (-15℃～35℃)



Matching Cooperation

We offer you not only highly specialized-production, in-house testing, prototypin-gand simulation, but also a professional part-ner. In addition, our battery cooling systemshave been tested and certified, all in accor-dance with the highest safety and qualitystandards.

Multiple Mounting Options

Compact design, lightweight design toreduce the burden of the vehicle. Flexibleinstallation, can be placed on the roof orunder the chassis

02 TKT BTMS Solution

TKT-BCS5-CW <<<

Based on the long-term accumulation of professional design team and production-team, we precisely develop demand products for each customer

Matching Vehicles

It is mainly used in logistics transportation vehicles such as electric buses, heavy-duty trucks, and electric sanitation vehicles, as well as heavy-duty electric equipment vehicles.

Material Selection

Cold-rolled steel plate electrophoresis + powder coating process: ultimate rust prevention, corrosion resistance, ultra-high efficiency and environmental friendliness.

Working Mode

Optional PTC liquid heater allows forselection of standby, with cooling,heating, and self-cycling working modes.

Fault Detection

The adoption of CAN buscommunication enables it to havethe function of fault self-diagnosisand real-time uploading of operatingstatus and fault information.

Scientific Test

Passed vibration testing； EMC can meet Level III requirements.

Optional Configuration

tube-fincondenser, DC-DC, expansion tank.corrosion, and high altitude.

Product Application



Adjust Battery Temperature (-15℃～35℃)



Matching Cooperation

We offer you not only highly specialized-production, in-house testing, prototypin-gand simulation, but also a professional part-ner. In addition, our battery cooling systemshave been tested and certified, all in accor-dance with the highest safety and qualitystandards.

Multiple Mounting Options

Compact design, lightweight design toreduce the burden of the vehicle. Flexibleinstallation, can be placed on the roof orunder the chassis

03 TKT BTMS Solution

TKT-BCS6-R <<<

Based on the long-term accumulation of professional design team and production-team, we precisely develop demand products for each customer

The TKT integrated thermal management system is specifically designed for electric buses, combining air conditioning and battery thermal management into a single unit. While delivering robust performance, the system significantly enhances energy efficiency, saves installation space, reduces maintenance needs, and lowers overall costs, providing a highly efficient and compact solution for the vehicle.

Matching Vehicles

Designed specifically for air conditioning systems in electric buses.

Scientific Test

Passed vibration testing； EMC can meet Level III requirements.

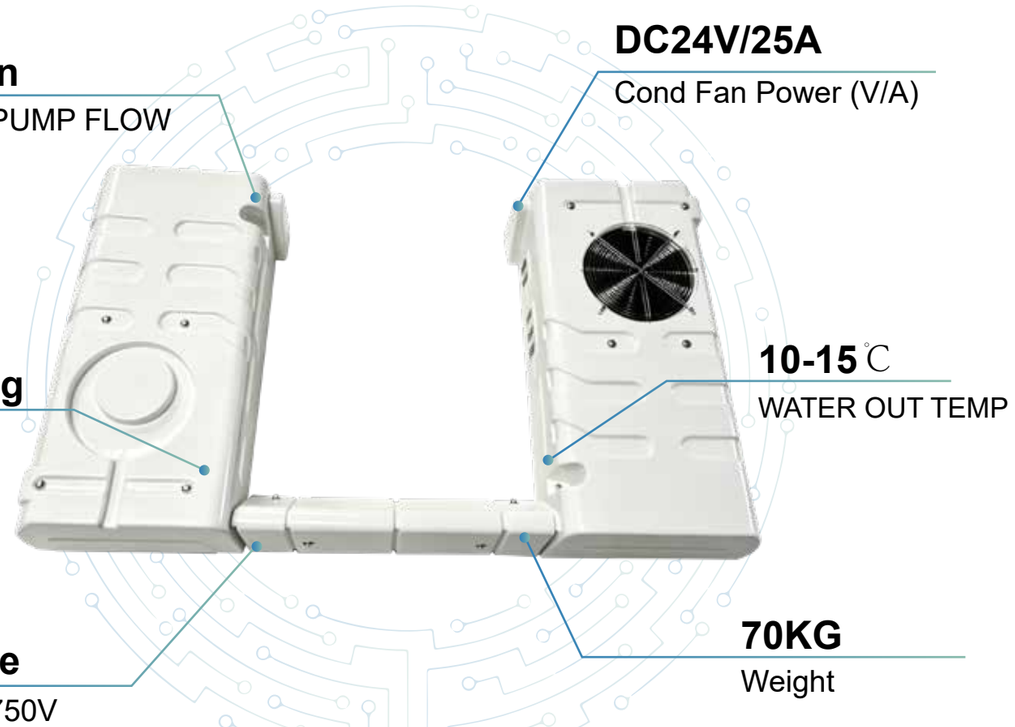
Product Application



OEM



Adjust Battery Temperature (-15℃～35℃)



Matching Cooperation

We offer you not only highly specialized-production, in-house testing, prototypin-gand simulation, but also a professional part-ner. In addition, our battery cooling systemshave been tested and certified, all in accor-dance with the highest safety and qualitystandards.

Professional Customization



04 TKT BTMS Solution

TKT-BCS8-R <<<

Based on the long-term accumulation of professional design team and production-team, we precisely develop demand prod-ucts for each customer

The unit is designed on the roof, It is mainly used in electric vehicles, such as electric buses, trucks, electric sanitation vehicles, and heavy-duty electric equipment vehicles.

The adoption of CAN bus commu-nication enables it to have the function of faultself-diagnosis and real-time uploading of operating status and fault information.

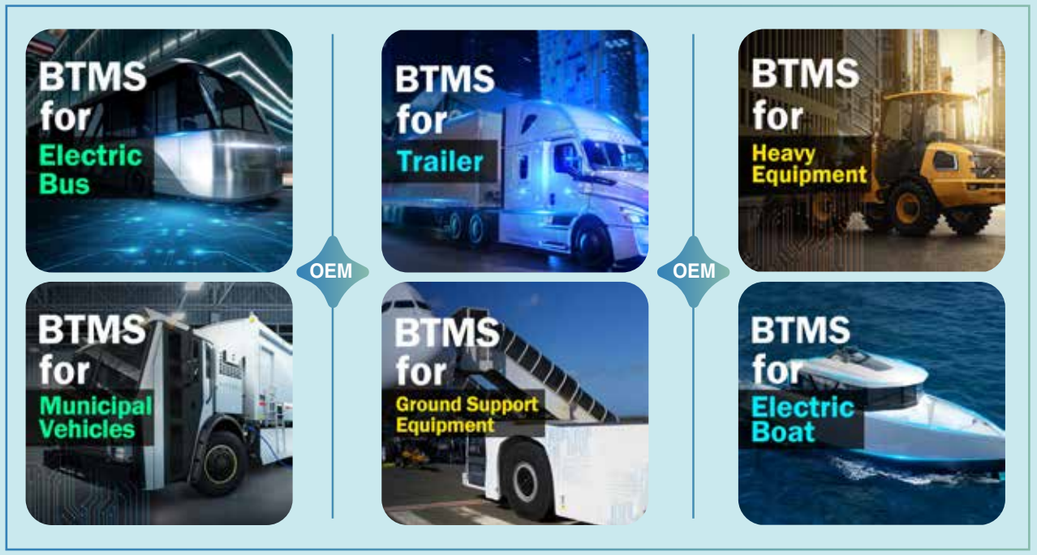
Cold-rolled steel plate electrophoresis + powder coating process: ultimate rust prevention, corrosion resistance, ultra-high efficiency and environmental friendliness.

Passed vibration testing； EMC can meet Level lll requirements.

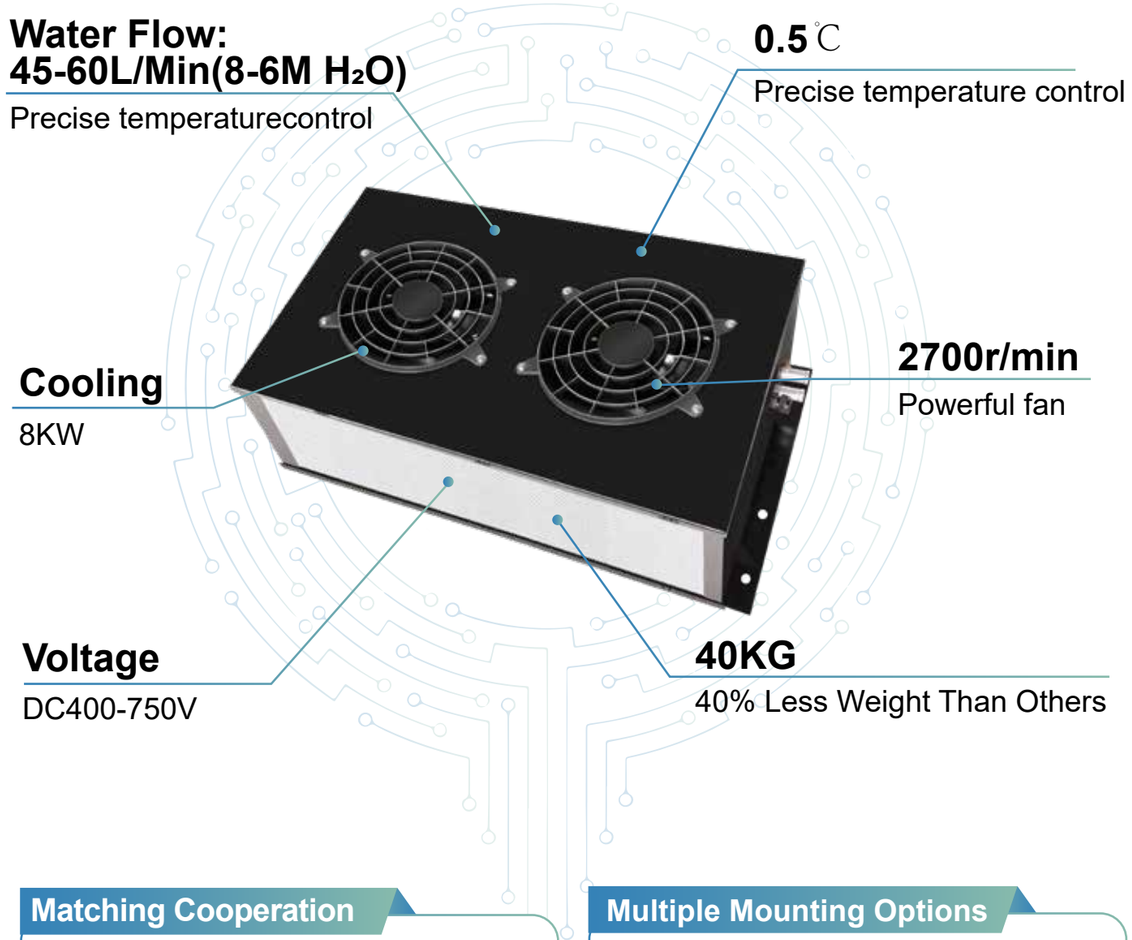
Optional PTC liquid heater allows for selec-tion of standby, with cooling, heating,and self-cycling working modes.

Strong environmental adaptability: it can meet the operating require-ments of harshconditions such as high and low temperatures, high corrosion, and high altitude.

Product Application



Adjust Battery Temperature (-15℃～35℃)



Matching Cooperation

We offer you not only highly specialized-production, in-house testing, prototypin-gand simulation, but also a professional part-ner. In addition, our battery cooling systemshave been tested and certified, all in accor-dance with the highest safety and qualitystandards.

Multiple Mounting Options

Compact design, lightweight design toreduce the burden of the vehicle. Flexibleinstallation, can be placed on the roof orunder the chassis

05 TKT BTMS Solution

TKT-BCS10-CW

Based on the long-term accumulation of professional design team and production-team, we precisely develop demand products for each customer

Matching Vehicles

It is mainly used in logistics transportation vehicles such as electric buses, heavy-duty trucks, and electric sanitation vehicles, as well as heavy-duty electric equipment vehicles.

Material Selection

Cold-rolled steel plate electrophoresis + powder coating process: ultimate rust prevention, corrosion resistance, ultra-high efficiency and environmental friendliness.

Working Mode

Optional PTC liquid heater allows forselection of standby, with cooling,heating, and self-cycling working modes.

Fault Detection

The adoption of CAN buscommunication enables it to havethe function of fault self-diagnosisand real-time uploading of operatingstatus and fault information.

Scientific Test

Passed vibration testing； EMC can meet Level III requirements.

Optional Configuration

tube-fincondenser, DC-DC, expansion tank.corrosion, and high altitude.

Product Application



Adjust Battery Temperature (-15℃～35℃)

Water Flow: 45-75L/Min(8-6M H_2O)
Precise temperaturecontrol

0.5℃
Precise temperature control



Cooling
10KW

2700r/min
Powerful fan

Voltage
DC400-750V

40KG
40% Less Weight Than Others

Matching Cooperation

We offer you not only highly specialized-production, in-house testing, prototypin-gand simulation, but also a professional part-ner. In addition, our battery cooling systemshave been tested and certified, all in accor-dance with the highest safety and qualitystandards.

Multiple Mounting Options

Compact design, lightweight design toreduce the burden of the vehicle. Flexibleinstallation, can be placed on the roof orunder the chassis

Application Scope >>>

E-BUS

2

Depending on the length and model of the bus, corresponding battery cooling solutions are provided.





3

E-HEAVY EQUIPMENT

Provide suitable solutions for different needs of heavy equipment





1

E-TRUCK

Battery cooling systems with varying cooling capacities are provided for different sizes of pure electric trucks.

4

E-BOAT

TKT will provide different solutions according to the different needs of each customer

Our Advantages

Intelligent Temperature Control: Combining liquid cooling and PTC heating, it provides precise temperature control in all climates, extending lifespan.

Integrated Design: A single, integrated layout, with optional ATS/BTMS integration, resulting in a compact and lightweight structure.

Reliable Control: CAN bus communication adapts to dynamic operating conditions, ensuring safety and preventing misoperation.

Professional Customization: Mature technology, globally trusted, offering extensive case studies and OEM services.

Technical Support

TKT BTMS is now available for electric Bus, off-highway, boat and other commercialvehicles. We also provide design and technical support to the world's leading vehicle manu-facturers, TKT has a team of 135 engineers including design engineers, structural engi-neers, electrical engineers, test engineers, EM/EMC engineers and after-sales engineerswith complete design, development, testing and certification capabilities for refrigerationequipment and components



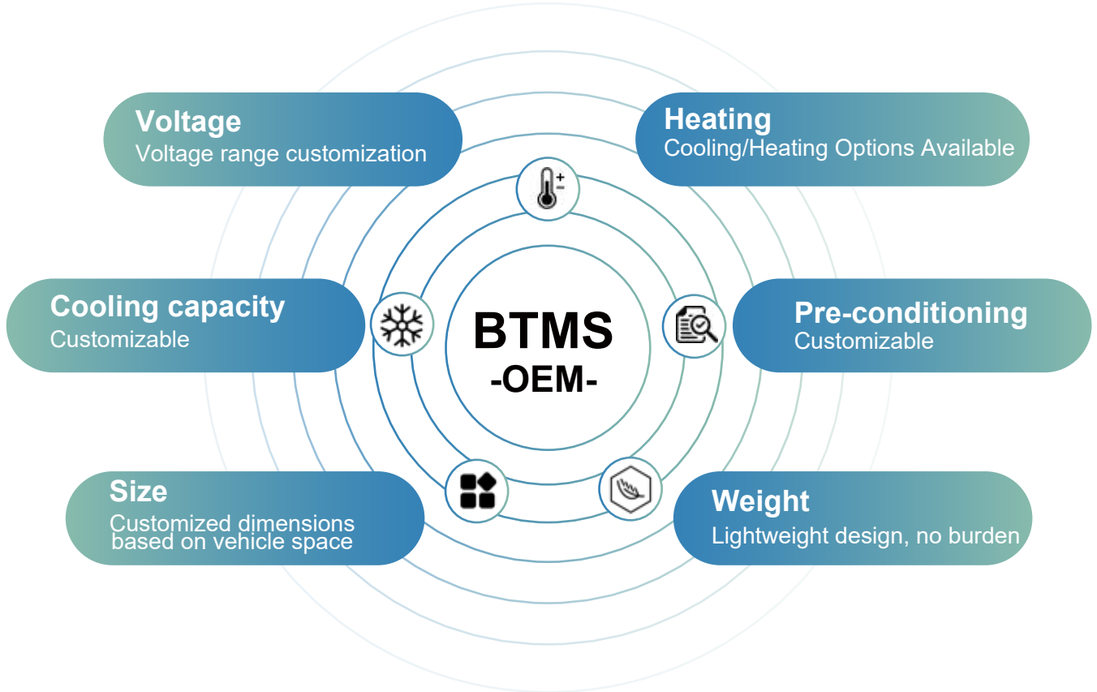
OEM/ODM <<<

What we offer you:
We will provide you with a suitable



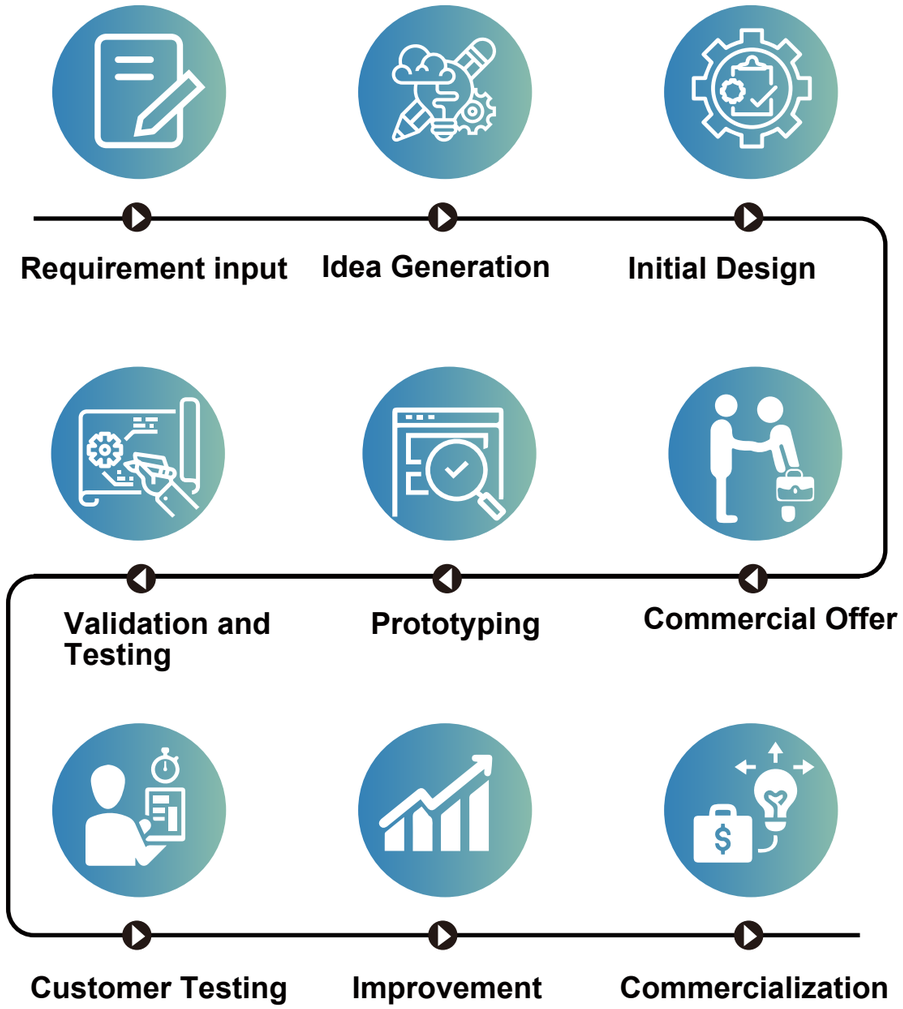
1. Specialized application areas
2. High industry recognition
3. Strong technical team
4. Comprehensive technical capabilities
5. Wide range of services

Require → Design → Protoyping → Improve → Test



OEM/ODM Process <<<

Customized and traceable throughout: Everything is centered on solving the specific problems of our clients, providing personalized solutions.



"Choose TKT, and you get not just a product, but a solution that perfectly matches your needs, with completely transparent and controllable quality and process."