

Traction Inverter for 1500 V DC / 750 V DC

| Description | 1500 V DC | 750 V DC |
|------------------------------------|---|--------------------------------|
| Control method | PWM controlled voltage type VVVF inverter | |
| Cooling method | Forced air cooling | |
| Output capacity | 210 kW (Continuous) × 4 motors | 190 kW (Continuous) × 4 motors |
| Inverter Unit | IGBT rating : 3,300 V - 1,500 A | |
| Dimension (width x depth x height) | 2,400 × 1,600 × 620 mm | |
| Mass | 785 kg (including Filter Reactor)* | |

*Design estimation. Actual product mass may vary.

Traction Motor for 1500 V DC / 750 V DC

| Description | 1500 V DC | 750 V DC |
|------------------|---------------------|----------|
| Rating | 210 kW (Continuous) | |
| Insulation class | Class 200 | |
| Cooling method | Self - ventilation | |
| Mass | 540 kg* | 580 kg* |

*Design estimation. Actual product mass may vary.

Auxiliary Power Supply Inverter for 1500 V DC / 750 V DC

| Description | 1500 V DC | 750 V DC |
|------------------------------------|---|----------|
| Control method | PWM controlled voltage type CVCF inverter | |
| Cooling method | Forced air cooling | |
| Capacity | 270 (135×2) kVA | |
| Efficiency | Exceeding 92 % | |
| Dimension (width x depth x height) | 2,400 × 980 × 650 mm | |
| Mass | 700 kg* | |

*Design estimation. Actual product mass may vary.

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Find out more on <http://toshiba-railway.com>

TOSHIBA INFRASTRUCTURE SYSTEMS & SOLUTIONS CORPORATION

72-34, Horikawa-cho, Saiwai-ku, Kawasaki 212-8585, Japan Tel: +81-(0)44-331-1600

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1500 V DC / 750 V DC

Electrical Equipment and Systems for Rolling Stock

High reliability
High performance
Energy saving
Maintenance reduction
Light and compact



Toshiba supplies advantageous equipment to realize economical, comfortable and safe railway operations.

1500 V DC / 750 V DC System Propulsion system

Light and compact traction inverter and traction motor save energy and lengthen the life of bogies and tracks.

Traction Inverter

Energy saving

Full electric brake from higher speeds

The high-capacity traction inverter makes it possible to use full electric brake from high speeds. Energy saving is improved.

High performance

High-power traction motor drive

High-power traction motor drive is achieved by the traction inverter with its high power capacity.

Light and compact

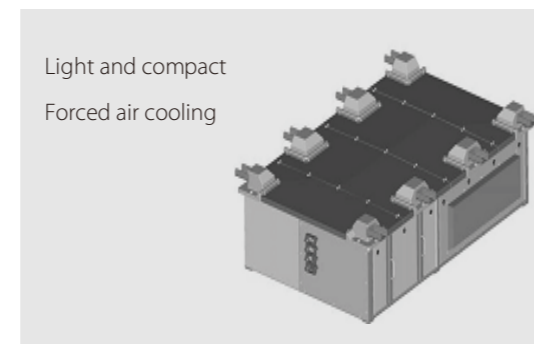
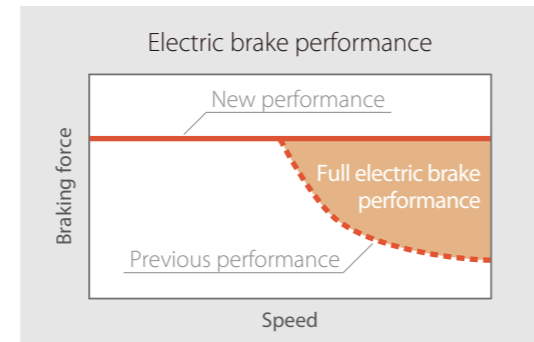
Down sizing of equipment

In order to maximize transportation capacity, a light and compact traction inverter and traction motor have been realized by adopting forced air cooling.

Maintenance reduction

Speed-sensor less vector control

No speed sensor is required. This contributes to simplification of fitting, and improvement of reliability by reduction the number of part.

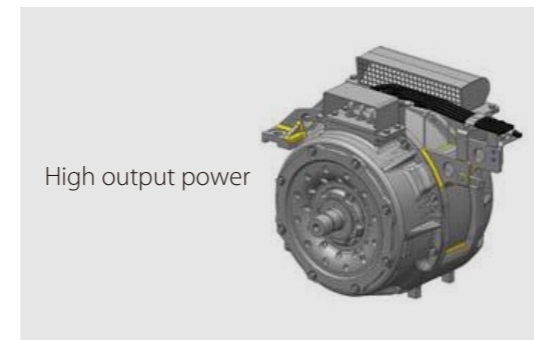


Traction Motor

Light and compact

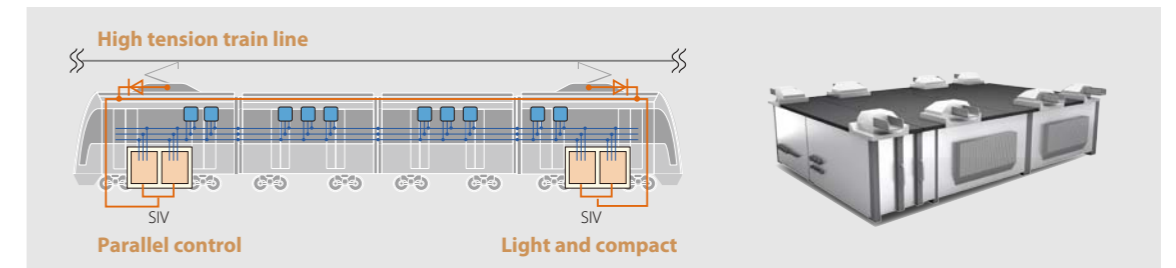
Compact and powerful

The high capacity traction inverter together with improvement of the traction motor structure realizes a light and compact traction motor.



Auxiliary power supply system

Auxiliary power supply equipment applying a parallel control system, contributing to enhanced reliability and customer service.



APU (Auxiliary Power Unit)

High reliability

Parallel control system

Two inverters are mounted in one housing and two housings are installed on board one train. Parallel control in four inverters. Even if one inverter fails, the train's power capacity is secured to maintain full air conditioning service, keeping passenger comfort.

Light and compact

Light and compact of equipment

Light and compact design of the auxiliary power supply equipment is achieved by the use of forced air cooling.

High reliability

High tension train line

Interruptions auxiliary power supply due to pantograph bounce are reduced by a high-tension train line between the pantographs.

TCMS

Train Control and Managing System

TEBus (Train Ethernet Bus) is adopted to exceed specification requirements, provides high capacity communications, real time control, improved electro-magnetic noise performance and rich media capabilities, while also easily accommodating redundancy.

High reliability

High-speed response

High reliability is assured thanks to real-time control, amplification of signal voltage and improved electro-magnetic noise performance.

Redundancy

High network redundancy

Even if a terminal fails, the double-ladder type configuration makes it possible to bypass the system to maintain communication.

Extendibility

10 / 100Mbps High-speed signaling

In-car displays, television reception and mixed transmission of multimedia information are available with high-speed communication.

