EV Traction Inverter

Reduced in size and weight by our original direct-cooling structure and modularization of parts. Serializing the products has enabled us to standardize the main components such as the power module and chiller, resulting in cost reduction.

EV Traction Inverter

Type S

■Specifications (Type S)

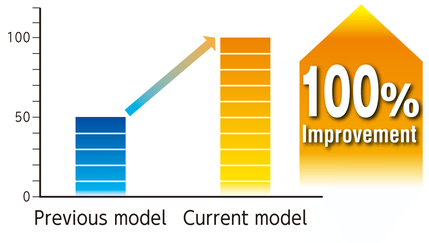
Input voltage	:375Vmax
Output power	:47kw
Volume	:2.2L
Weight	:3.5kg
Cooling method	:Water cooling

Type M

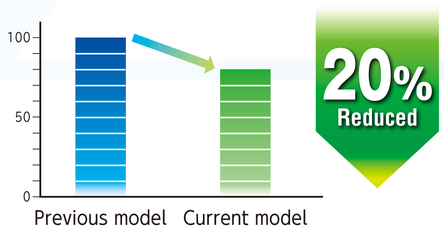
■Specifications (Type M)

Input voltage	:400Vmax
Output power	:80kw
Volume	:3.5L
Weight	:5.1kg
Cooling method	:Water cooling

Power density



Cost

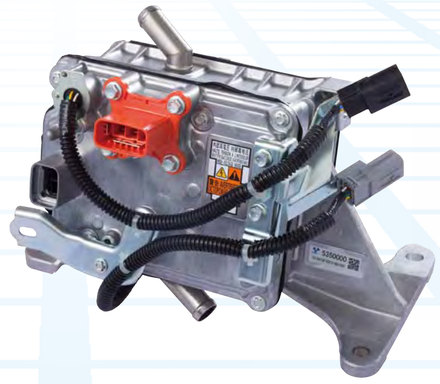


Inverter of Hydrogen Circulation Pump for TOYOTA FCV MIRAI

When the hydrogen circulating pump operates, the pump is efficiently controlled to minimize electric power consumption losses. Integrating the hydrogen circulating pump with the water pump inverter reduces size and weight.

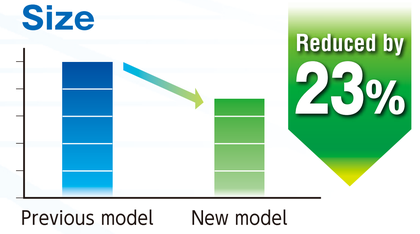
Inverter of Hydrogen Circulation Pump

Integrating the hydrogen circulating pump inverter into the water pump inverter allows for shared cooling water channels and power supply, reducing size and weight.



TOYOTA FCV MIRAI

Size

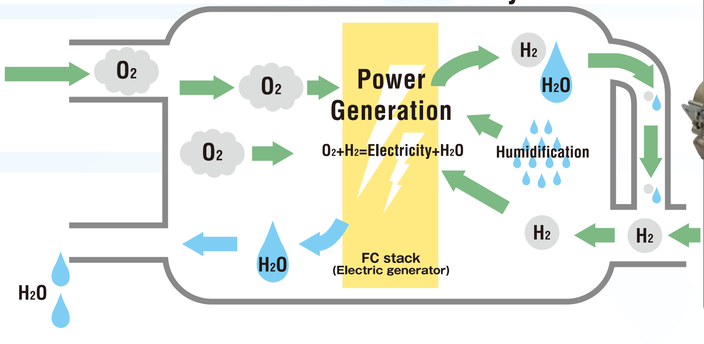


Product for Fuel Cell Vehicles

Air Compressor

Air is compressed and efficiently supplied to the fuel cell

FCV Power Generation System



Hydrogen Circulation Pump and Inverter

Unreacted hydrogen and water produced in the fuel cell stack are circulated

TOYOTA

PCU Cooling Plate

This cooling plate is installed inside the power control unit (PCU) to directly cool the power semiconductor devices.
(The PCU boosts the voltage of the hybrid vehicle's battery and converts the DC voltage into AC voltage to drive the motors.)

PCU Direct Cooling Plate

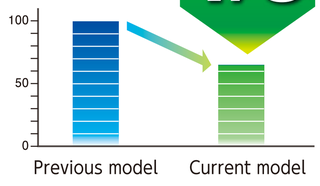
A simpler cooling structure and improved cooling performance have been achieved through the use of our proprietary brazing technology.

Simple structure in which an insulating substrate, a buffering material, and an aluminum plate are batch-brazed

Reduced thermal resistance by 1/3 and significantly reduces the number of downstream processes through direct mounting of power semiconductor devices on the batch-brazed cooler

Thermal resistance

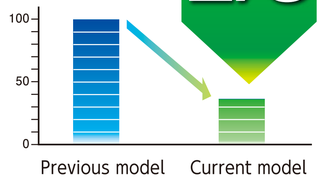
Reduced by 1/3



Reduced the plate size by 2/3 through cooler-structure simplification and cooling performance improvement

Size

Reduced by 2/3



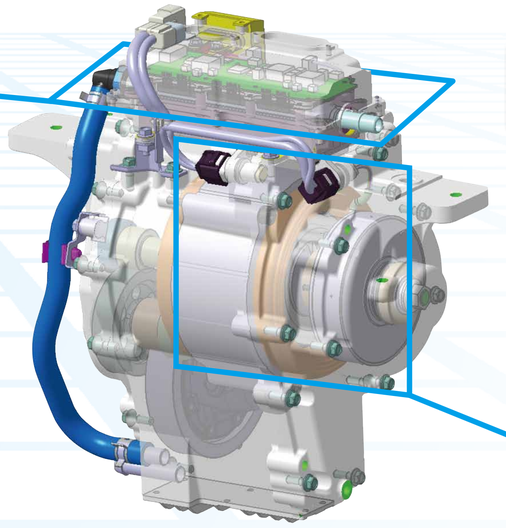
The development of this superior direct cooling plate has greatly helped reduce the overall size and weight of the PCU.

EV Powertrain Unit

(reference exhibit)

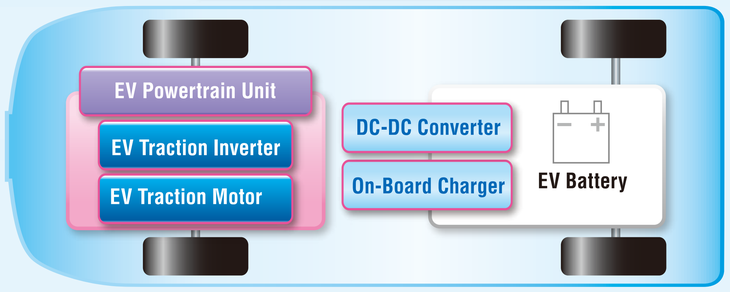
This powertrain unit was developed by enhancing our capabilities of power electronics and electric drive system technologies through electric lift trucks and on-board electronic products development. We optimized the parts assembly layout by integrating functional components such as inverters and motors, resulting in a compact and lightweight powertrain unit based on an entirely new concept.

EV Powertrain Unit



Suitable for a wide range of EVs, from mini to standard passenger cars

EV system diagram



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