Hydrogen Circulation Pump for TOYOTA FCV MIRAI
Used on the Toyota MIRAI

Hydrogen Circulation Pump
Recirculates a portion of the hydrogen that did not undergo a chemical reaction during electric power generation in the fuel cell stack.

The water produced from electricity generation is also circulated, contributing to the development of a fuel cell stack without a humidifier.
## Specifications

<table>
<thead>
<tr>
<th>Pump type</th>
<th>2-lobes straight roots type</th>
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<tbody>
<tr>
<td>Maximum output</td>
<td>430W</td>
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<tr>
<td>Maximum speed</td>
<td>6,200r/min</td>
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<tr>
<td>Location</td>
<td>Under the driver's sheet</td>
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Mechanism of fuel cell and role of Hydrogen Circulation Pump

New model

Air Compressor

Electricity generation

O₂+H₂ → Electricity+H₂O

Electrode

Humidification

H₂O

Hydrogen Circulation Pump and Inverter

Fuel cell stack (Power Generation device)

Water discharge (H₂O)
Integrating the pump with the fuel cell stack raises the motor’s heat dissipation performance and contributes to 16% smaller size than the previous model.
Electric power consumption losses when operating the hydrogen circulation pump are minimized through efficient control.

Integration with the water pump inverter contributes to a more compact size and lighter weight.