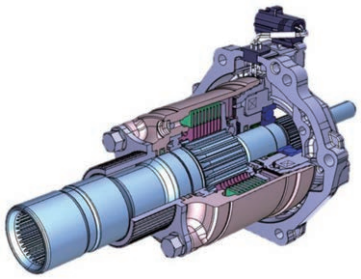
# ITCC for FR-based 4WD Vehicles



We have developed a new ITCC (Intelligent Torque Controlled Coupling) for FR-based 4WD crossover SUVs. The ITCC is a unit for optimizing torque distribution to the front and rear wheels as needed, and is widely used in conventional FF-based AWD vehicles.

This paper introduces our first ITCC for FR-based 4WD vehicles developed for the purpose of providing high performance and durability which sales have been started.

## Development Objectives

- Achieve a smaller packaging and lighter weight to enable installation in the transfer cases of FR-based 4WD vehicles
- Contribute to fuel efficiency and driving performance with 4WD by enhancing the accuracy of torque distribution to the front and rear wheels
  (Fuel efficiency: reduced slip ratio / Driving performance with 4WD: improved driving stability)

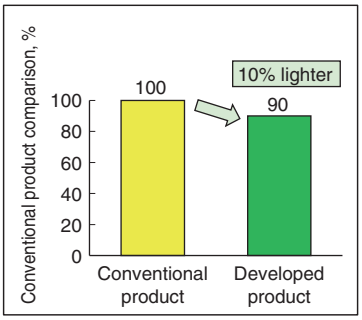
## Features

①Structure compatible with FR-based 4WD vehicles
The adopted structure transmits input from the engine to the drive axle (rear wheels) via a shaft that connects directly between the transmission and rear propeller shaft, which is then output to the driven axle (front wheels) via the coupling housing.

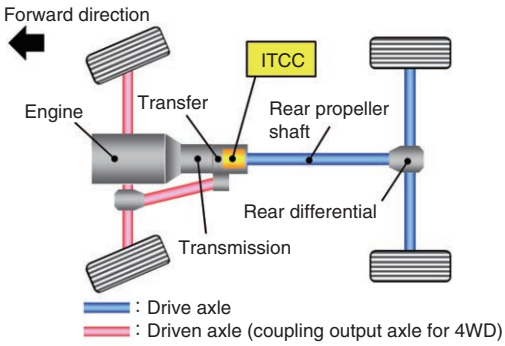
②Lightweight housing with excellent vehicle mountability
The diameter has been reduced to match the layout inside the transfer, enhancing vehicle mountability and achieving a weight that is approximately 10% lighter than the conventional model (see the graph on the right).

③Highly heat-resistant and durable clutch
Featuring a clutch with highly heat-resistant and durable friction material, it can handle severe usage conditions.

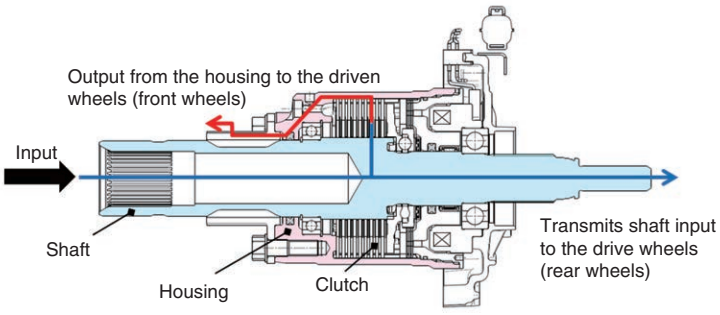
④Temperature sensor
The temperature sensor enables current control based on temperature changes inside the transfer, resulting in enhanced torque accuracy.




Housing weight




ITCC mounting position in FR-based 4WD vehicles




Structure and torque flow of the developed ITCC

* ITCC is a registered trademark of JTEKT Corporation.

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