MOTION & CONTROL NSK

TECHNICAL INSIGHT

A PUBLICATION OF NSK EUROPE

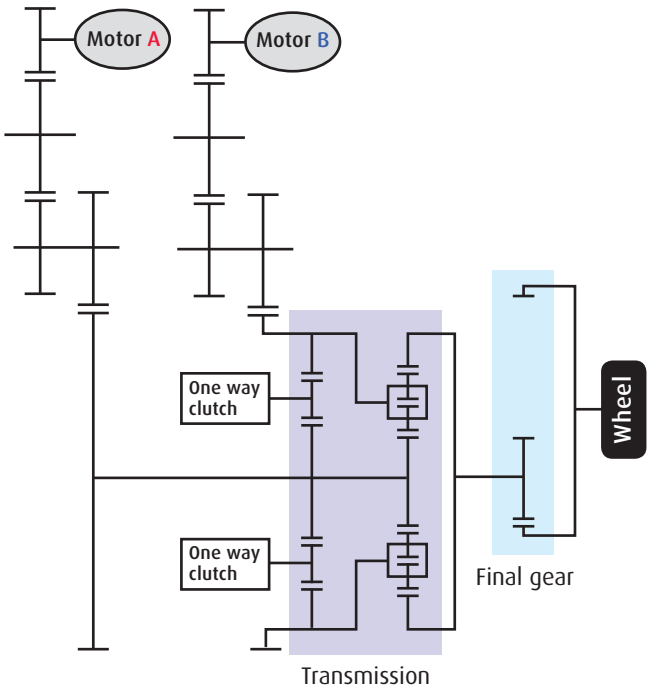
Wheel Hub Motor Fit

Development Objectives

- Achieve large driving torque and sufficiently high top speed within small size and light weight
- Improve fail-safety by using 2 small e-motors

General Description and Features of the Product (Structure and Operating Principles)

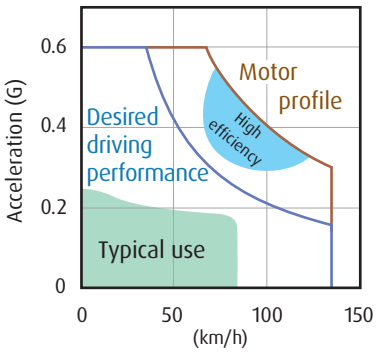
2 e-motors

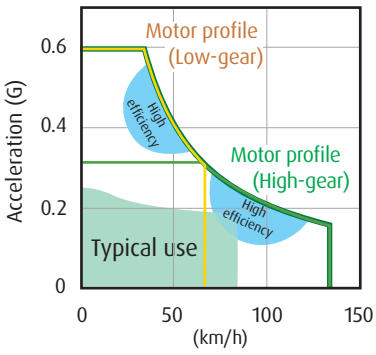


Gear train skeleton diagram

- Combine large driving torque at low speed and enough cruising speed using 2 small e-motors
- Applicable to 16 inch wheel

2-speed transmission



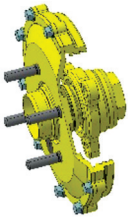


Max torque: 850Nm (Low-gear)
: 400Nm (High-gear)
Max speed : 145km/h

Gear train skeleton diagram

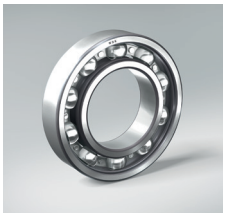
- Shifting depending on driving condition, and it achieves downsizing and improves efficiency.

NSK products in wheel hub motor fit



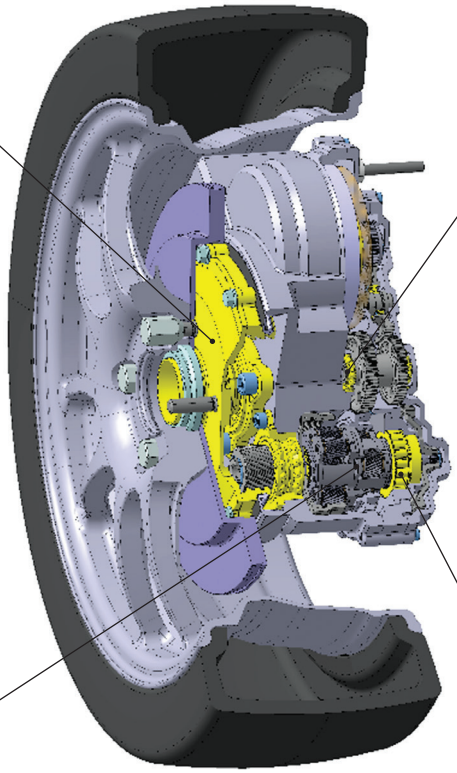
Final gear integrated hub bearing

A final gear set is integrated into the hub unit bearing.
This contributes to a shorter axial length of the wheel hub motor.



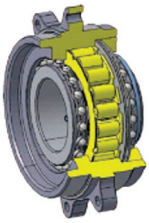
Anti-electric corrosion bearing

Steel rings and ceramic balls achieve high durability against electric corrosion.
This is suitable for bearings operated under high voltage conditions like electric vehicles.



Miniature cage & roller bearings

Cage & roller bearings for small size planetary gear sets.
This is also targeting many applications regarding electric vehicles including wheel hub motors.



One way clutch unit

A pair of ball bearings and a one-way clutch are combined.
This will contribute to the weight reduction of advanced transmissions.