

Study of Thermal Capacity of Two-speed Dual Clutch Transmssion

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In order to study the thermal capacity of a two-speed dual clutch transmission (DCT), mathematic calculation and simulation will be conducted. This paper presents a theoretical analysis of power losses and heat transfer in DCT. The power losses components include wet clutches, concentric shaft, power losses caused by gear meshing, gear windage, churning, and bearings. In order to demonstrate the effectiveness of the model, simulations are conducted based on the presented theoretical analysis and developed powertrain model using different vehicle test driving cycles. Thermal capacity study can contribute to the design of further transmissions and calculating its reliability.

Keywords: Thermal Capacity, heat transfer, dual clutch transmission, DCT, Simulation.