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(54) **PERMANENT MAGNET MOTOR WITH  
HIGH-EFFICIENCY AIR-WATER MIXED  
COOLING SYSTEM**

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(57) **ABSTRACT**

A permanent magnet motor with a high-efficiency air-water mixed cooling system is provided. An inner circumference of a stator core of the permanent magnet motor is provided with multiple stator slots along a circumferential direction, armature windings are arranged in the stator slots, an outer circumference of the stator core is provided with multiple axial ventilation channels along an axial direction and a radial ventilation channel along a radial direction. The radial ventilation channel is communicated with the axial ventilation channels and contacts with a rotor core. Stator water-cooling discs are arranged at both ends of the stator core. A casing is provided with an air inlet communicated with the radial ventilation channel, multiple air outlets communicated with the axial ventilation channels, casing water-cooled water inlets and casing water-cooled water outlets. The casing water-cooled water inlets and the casing water-cooled water outlets are both communicated with the stator water-cooling discs.

