

DISC-SHAPED PERMANENT MAGNET EDDY CURRENT BRAKING DEVICE AND RAILWAY VEHICLE

ABSTRACT

A disc-shaped permanent magnet eddy current braking device, comprising an axle (70), a brake disc (10) mounted on the axle (70), and a permanent magnet eddy current braking device located on a side of the brake disc (10). The permanent magnet eddy current braking device comprises an outer race permanent magnet assembly (30) and an inner race permanent magnet assembly (40). The outer race permanent magnet assembly (30) comprises a plurality of outer race permanent magnets (31) which are uniformly distributed in the circumferential direction, S poles and N poles of the outer race permanent magnets (31) being successively and alternately arranged. The inner race permanent magnet assembly (40) comprises a plurality of inner race permanent magnets (41) which are uniformly distributed in the circumferential direction, S poles and N poles of the inner race permanent magnets (41) being successively and alternately arranged. The inner race permanent magnet assembly (40) can rotate with respect to the outer race permanent magnet assembly (30), so as to control a braking force by changing the phases of the inner race permanent magnets (41). The device uses the permanent magnets to generate a magnetic field to prevent the brake disc from rotating, and uses a drive motor to control a stator to rotate so as to activate and deactivate an eddy current and the braking force, thereby replacing friction braking, and reducing the abrasion of friction pairs.

(FIG. 7)