Title (en)

VERTICAL ELECTROMAGNETIC BRAKING DEVICE FOR CONTROLLING FLOW OF MOLTEN STEEL IN CONTINUOUS CASTING CRYSTALLIZER

Title (de)

VERTIKALE ELEKTROMAGNETISCHE BREMSVORRICHTUNG ZUR STEUERUNG DES FLUSSES VON STAHLSCHMELZE IN EINEM STRANGGIESSKRISTALLISATOR

Title (fr)

DISPOSITIF DE FREINAGE ÉLECTROMAGNÉTIQUE VERTICAL PERMETTANT DE RÉGULER L'ÉCOULEMENT D'ACIER FONDU DANS UN CRISTALLISEUR À COULÉE CONTINUE

Publication

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Application

EP 17830300 A 20170605

Priority

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Abstract (en)

The invention relates to a vertical electromagnetic braking device for controlling molten steel flow in a continuous casting mold. The vertical electromagnetic braking device comprises one or two pairs of horizontal magnetic poles, exciting coils, two pairs of vertical magnetic poles and a magnet yoke. When one pair of the horizontal magnetic poles is set up, the horizontal magnetic poles are located below a submerged nozzle and arranged along the whole width sides of the mold. When the two pairs of the horizontal magnetic poles are set up, the two horizontal magnetic poles are marked as upper horizontal magnetic poles and lower horizontal magnetic poles respectively, wherein the lower horizontal magnetic poles are located below the submerged nozzle and set up along the whole width side of the mold, and the upper horizontal magnetic poles are located near a molten steel surface of the mold and set up along the whole width of the mold. The two pairs of the vertical magnetic poles are respectively set up near the two side areas of the mold and the two pairs of the vertical magnetic poles intersect with one or two pairs of the horizontal magnetic poles. The exciting coils and the magnet yoke are mounted to match with the horizontal magnetic poles. As the current is applied through the exciting coils, a steady magnetic field is formed between the horizontal magnetic poles and the vertical magnetic poles. The molten steel which flows in the mold is suppressed by the electromagnetic force as the molten steel passes through the steady magnetic field, wherein the direction of the electromagnetic force is opposite to the molten steel flowing direction, so that the molten steel flow in the mold is controlled through the electromagnetic force.

IPC 8 full level

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