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ACCEPTED MANUSCRIPT

Numerical simulation of a stirring purifying technology for aluminum melt

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Abstract

Compared to the traditional Star impeller, the newly-designed impeller (hereinafter termed as the XSR impeller) has the characteristic of pumping which can promote degassing efficiency, and smaller area of the dead region and higher turbulent kinetic energy are obtained within the melt simultaneously. In the range of the discussed immersion depths of impeller (H=185 mm, 315 mm and 435 mm), both too shallow depth (185 mm) and too deep depth (435 mm) are bad for the distribution of flow field. For the discussed rotational velocities of impeller (V=390 rpm, 430 rpm,

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