

论文

异步轧制取向硅钢中织构沿板厚的分布与发展

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摘要: 采用异步轧制对经过一次正常冷轧和中间退火的、厚度为0.746mm的工业取向硅钢实施一次速比为1.17的异步冷轧,轧至0.34mm,在普通的工艺条件下,进行退火,用ODF和反极图定量研究各层织构的分布与转化。并测量了磁性。结果表明:在本工艺条件下,织构组分与传统冷轧相同,异步轧制板材的表层附近出现了类似于正常轧制下位于亚表面层上的,理想的冷轧织构组分,但是已明显地偏向于快速辊侧表面,冷轧织构组态沿着轧板的厚度方向呈现了非对称分布;脱碳退火后,η织构加强,织构组分沿板厚方向上重新出现了以轧板中心面为对称的分布;二次再结晶退火后,产生了强度集中的Goss织构。其磁性能不低于同步轧制。

关键词: 异步轧制 硅钢 织构

TEXTURE DISTRIBUTION AND DEVELOPMENT THROUGH THE THICKNESS AFTER CROSS SHEAR ROLLING OF GRAIN ORIENTED SILICON STEEL

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Abstract: Commercial grain oriented silicon steel was cold rolled from 0.746 mm to 0.34 mm, by cross shear rolling with a roll mismatch speed ratio 1.17, after first cold rolling and intermediate annealing as normal. The subsequent annealing was just as that in industry. The texture distribution and development through the thickness were researched by ODF and reverse pole figure quantitative analyses, and the magnetic properties were measured. The results indicate that the deformation texture is similar to that obtained by traditional one, favorable deformation texture can also be found near the both outer layers of sheet, but they deviate obviously to the fast speed roll. Therefore, the deformation texture shows an asymmetry distribution through the thickness. After decarbon annealing, η-fibre increases, texture with a symmetry distribution reappears through the thickness: sharp Goss texture forms after the secondary recrystallization annealing, and the magnetic properties measured are not lower than that rolled by traditional one.

Keywords: cross shear rolling silicon steel texture

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