三维曲面卷板柔性辊设计与成形工艺分析 Analysis of Roll Bending Configuration and Technology of Roll Bending Three Dimensional Surface

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关键词： 连续成形 多点成形 三维曲面 板材 工艺

摘 要： 通过分析基于连续多点调形方法的三维曲面卷板成形原理，对卷板成形装置关键件柔性辊的不同布置和驱动方式进行了研究。确立了三辊布置双端驱动的方式，设计了三维曲面卷板成形装置。对卷板成形工艺进行分析，探讨了不同的成形工艺过程。结果表明：一步成形，在小变形量的情况下适用，当上辊的下压量超出一定值时，无法成形；分步成形法，以小的下压量逐渐诱导板材变形，可以消除板材边缘皱褶，减小回弹，有利于板材成形。

Continuous multipoint forming method(CMFM) was introduced simply. The key rollers of continuous multipoint forming device(CMFD) were studied in different disposals and different drives. The drive of three rollers at two sides was felicitous realized, and the CMFD was developed. The process of roll bending was discussed. The results showed that one-step forming is adopt on mini deformation, but when the press displacement of top roller exceeds stated value, the procedure can’t be continued, the multi-step forming is advantaged of inducing sheet metal deformed, eliminates the sides winkle, and reduces the spring back with each mini deformation.

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