加工路径段进给速度的转接及加减速处理方法 Transiting and Acceleration/Deceleration Methods for Feed-speed of Machined Path Segments

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关键词： 高速加工 进给速度 加减速 算法

摘 要： 针对高速高精加工对数控系统在进给速度控制方面的要求，根据相邻路径段间的转接角大小建立了可直接进行段间转接的条件,并研究了该条件不成立时对转接速度的修正问题。提出了段内加减速的处理基本原则,并在保持路径段长度不变的基础上对路径段内的进给速度重新进行规划，避免了以往插补前加减速方法中减速点和终点预测困难的问题。实际计算结果表明，相对零速度转接加减速处理方法，所提出的方法在同样保证加工精度等基础上提高了加工效率(每段约2%)，在高速加工系统中可以得到较好应用。 In order to meet the requirements of numerical control system to control feed-speed in high-speed and high-accuracy machining, the conditions of direct transiting under the adjacent path segments are determined, and the correcting problem of turning speed is researched according to the transiting angle when the conditions are not feasible. The dealing principle of acceleration/deceleration in one segment is presented and the feed-speed is re-planed under the basis of invariableness length. The trouble of forecasting deceleration point and end point using the past methods is avoided. The result of practical computation indicates that the proposed method, relative to the method of turning speed ‘0’, enhances the machining efficiency(about 2% per segment) based on assuring accuracy and could be well applied to high-speed machining system.

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