

弧齿锥齿轮大轮齿顶倒角加工模型与虚拟加工

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关键词: 弧齿锥齿轮 齿顶倒角 虚拟加工

摘要: 通过分析弧齿锥齿轮大轮齿顶倒角加工原理, 推导了弧齿锥齿轮大轮齿顶倒角刀具轨迹模型, 基于VERICUT虚拟加工软件平台, 建立了弧齿锥齿轮齿顶倒角NC机床模型及弧齿锥齿轮齿顶倒角虚拟加工模型。对一具体的弧齿锥齿轮进行了刀具轨迹计算, 并在VERICUT环境下进行了虚拟加工, 测量结果表明弧齿锥齿轮大轮齿顶倒角虚拟加工模型满足设计要求。Chamfering tooth crest of spiral bevel gears can effectively relieve stress concentration and reduce noise when spiral bevel gears are meshed, it can also extend service life and increase transmission stability of spiral bevel gears. A model of tools track on chamfering tooth crest of the bull spiral bevel gear was proposed based on analysis of the mechanism for chamfering tooth crest of the bull spiral bevel gear. The NC machine tool and virtual simulation machining models for chamfering the bull spiral bevel gear were carried out with VERICUT. The models of tools track and virtual simulation machining were verified by virtual simulation chamfering tooth crest on one given bull spiral bevel gear with the tools track calculated by Matlab. The measuring results indicate that the model of virtual simulation machining for chamfering the bull spiral bevel gear can meet the design requirements.

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