



航空学报 » 1994, Vol. 15 » Issue (11) :1403-1407 DOI:

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用于钻头刃磨的运动合成方法研究

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RESEARCH ON KINEMATIC SYNTHESIS OF A ROBOT MANIPULATOR FOR DRILL GRINDING

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摘要

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摘要 提出一种六自由度机械手的运动合成方法应用于钻头的刃磨,该方法利用运动的合成形成了刃磨钻头后刀面所需的刃磨运动,从而使得刃磨的调整变得十分方便。刃磨参数可以根据钻尖几何参数对机械手运动方程进行求解得到,刃磨出钻尖的测量结果与理论值基本一致。

关键词: 钻头 磨 机器人臂 运动学

Abstract: The kinematic synthesis of a six degree-of-freedom robot manipulator is analyzed and the methodology is employed for grinding of drill flanks. The method synthesizes the mechanism to obtain the necessary motion of drill grinding process, so that the grinding manipulator is mechanically simple and flexible, and the adjustment and setup of the parameters are very easy. Kinematic equations of the manipulator are established and the orientation and position matrix of the drill point is developed. In a prototype grinding machine several drills are ground successfully to provide initial confirmation of the theory.

Keywords: drill bits grinding kinematics robot arms

Received 1993-03-06; published 1994-11-25

引用本文:

李信能;陈鼎昌. 用于钻头刃磨的运动合成方法研究[J]. 航空学报, 1994, 15(11): 1403-1407.

Li Xinneng; Chen Dingchang. RESEARCH ON KINEMATIC SYNTHESIS OF A ROBOT MANIPULATOR FOR DRILL GRINDING[J]. Acta Aeronautica et Astronautica Sinica, 1994, 15(11): 1403-1407.

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