磨煤机磨辊堆焊修补路径识别

摘 要

　　传统的人工焊接耗费了大量的人力、物力以及财力，并且效率低下，所用时间也较长，无法满足大规模焊接作业的需求，甚至还给工人们带来了一定的安全隐患，逐渐被现代市场所淘汰，随着时代的变迁，我们在焊接自动化方面、计算机领域以及数控车床的方面有了一定的发展，将机器人应用于焊接作业当中，既能高效又快速的完成工程，又能减少企业在人力方面的成本，而对于焊接技术员来说，自动化焊接则提高了日常工作的安全系数，也减少了平日里的工作量。

　　本文课题主要是磨煤机磨辊堆焊修补路径识别技术，主要分析了磨煤机磨辊磨损的一般规律，磨煤机堆焊的情况，以及焊接路径识别现状。设计了四种方案用于进行磨辊堆焊修补路径的识别，分别是：极限尺寸方案，三维几何形状识别技术方案，单二维截面几何形状识别技术方案以及多二维截面几何形状识别技术方案。通过对所选四种方案优缺点以及实用性的对比，最终确定选择多二维截面几何形状识别技术方案来进行磨辊堆焊修补路径识别，根据所选方案的原理设计出相应装置用于测量出磨辊磨损面的形状，为后续的磨煤机磨辊离线堆焊修复做好准备。所设计的装置根据实际磨辊的大小形状采用矩形梁作为支架，横梁上面设置了导轨和滑块，安装激光尺用于测量磨辊磨损面的形状，激光尺可随滑块左右前后移动，使装置的灵活度较高。该装置自动化程度较高，解放了劳动力，安全性能高，节省了资源成本。

关键词：磨辊；修复；自动化焊接；自动化堆焊；路径识别

Abstract

Traditional manual welding according to cost a lot of manpower and material resources and financial resources, and low efficiency, the time is longer, can not satisfy the demand of large-scalewelding press and even the workers brought back a safe hidden trouble, gradually being eliminated by the modern market, with the changes of The Times, we are in the field of welding automation, computer and has a certain development of numerical control lathe, is applied to robot welding operation, both canefficient and rapid completion of the project, and can reduce the cost of enterprise in the aspect of human, and for welding technician, the automation welding according to improve the safety factor of the daily work, is also reduce the daily workload.

This thesis mainly focuses on the identification technology of the repair path of the mill roller's surfacing welding, and mainly analyzes the general law of the mill roller's wear, the situation of the mill's surfacing welding, and the current situation of the welding path identification. Four schemes are designed for the identification of repair paths of roller surfacing welding ,which are: limit size scheme, three-dimensional geometric shape recognition scheme, single two-dimensional geometric shape recognition scheme and multiple two-dimensional geometric shape recognition scheme. Through and practic ability on the advantages and disadvantages of the selected four kinds of scheme comparison, the final choice multiple two-dimensional section geometry idehtification technology scheme for roller surfacing welding repair path identification, according to the principle of the selected scheme to design the corresponding device used to measure the shape of the roller wear, for subsequent coal mill roller of fline prepare welding repair. According to the size and the shape of the actual roller, the designed device uses a rectangular beam as support, set up a guide rail and beam above the slider, install laser rule used for measuring the shape of the roller wear, laser ruler can move around with the slide block, make the equipment has high flexibility. The device has a high degree of automation, liberated labor, high safety performance and saved resource cost.

Keywords: Grinding roller; Repair; Automatic welding; Automatic surfacing welding; Path

recognition

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