

零出力改造切缸工况汽机轴振大问题解决 【上架时间： 2023-03-30】



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详细信息

【标题】 零出力改造切缸工况汽机轴振大问题解决

【Title】 Solving the problem of large vibration of turbine shaft under the condition of cutting cylinder with zero output force

【摘要】 河南某电厂210MW机组，#1、2机低压缸零出力改造后，历经非切缸工况轴振大问题解决后，切缸工况再现轴振大问题。排查判定是高压缸后轴封内二漏蒸汽返入低压缸内加热所致，加热定子，引起低压缸温度场及其变形量变化，造成径向动静碰磨导致振动大，加热转子，引起低压缸胀差大，造成轴向动静碰磨最终导致#2机振动大跳闸。关小内二漏管路阀门开度减少返入低压缸蒸汽量，控制低压缸胀差高限值以下，成功解决轴振大问题，确保了两台机切缸安全长周期运行。分析七抽温度异常变化、轴振曲线锯齿状持续波动幅值变化等成因，判定内二漏蒸汽返入低压缸内加热引发振动的分析思路值得借鉴，轴向碰磨的分析值得肯定。

【Abstract】 After the retrofit of the low pressure cylinder of # 1 and # 2 units in a 210MW power plant in Henan Province, the problem of shaft vibration under non-cutting cylinder working condition is solved, and the problem of shaft vibration under cutting cylinder working condition reappears. It is determined that the two leakage steam in the shaft seal of the high-pressure cylinder is reheated into the low-pressure cylinder, heating the stator causes the change of the temperature field of the low-pressure cylinder and its deformation, which results in the large vibration caused by the radial dynamic-static friction, and the large expansion difference of the low-pressure cylinder caused by heating the rotor, caused the axial static and dynamic rubbing finally caused # 2 machine vibration big trip. The valve opening of the two-leakage pipeline is closed to reduce the amount of steam flowing back into the low-pressure cylinder, and the high limit of the differential expansion of the low-pressure cylinder is controlled. Based on the analysis of the causes of the abnormal temperature change of the seven pumps and the serrated continuous amplitude change of the shaft vibration curve, it is concluded that the vibration caused by the return of the inner two leakage steam into the low pressure cylinder for heating is worth using for reference, and the analysis of the axial rubbing is worth affirming.

【关键词】 低压缸；零出力；切缸；温度场；胀差；径向；轴向；碰磨；轴振

【Keywords】 Low pressure cylinder; zero output; cutting cylinder; temperature field; expansion difference; radial; axial; Rub; shaft vibration

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