
凝汽式汽轮机复合滑压运行滑压曲线绘制

摘 要

目前大型火电机组基本上都要进行深度调峰，这就要求机组有深度变工况运行的能力，而复合滑压运行方式在此基础上还能保证机组的安全性并提高经济性。本文就对此进行课题研究，以凝汽式汽轮机为目标，要全面了解了其特点，能够根据原始数据计算相关参数并掌握绘制调节级特性曲线和复合滑压运行特性曲线的方法，绘制出合理的曲线。本文首先对复合滑压运行方式作出了全面分析，包括其具体的运行方式、采用相关方式的原因和意义、这种方式能给机组运行带来什么好处等。之后本文又吸收了书中以及有关文献中对汽轮机变工况的计算方法与调节级特性参数的计算方法，进行了大量的迭代计算，先绘制出了汽轮机调节级 μ — ε 特性曲线，进而得到所需要的压力比，再结合相关迭代计算逐步绘制出了复合滑压运行滑压曲线。在实例计算的部分，本文以某 600MW 机组为例，绘制出了汽轮机调节级 μ — ε 特性曲线，并且也合理地绘制出了凝汽式汽轮机复合滑压运行特性曲线。其中在求取参数时借助了水和蒸汽的特性参数计算软件来求取蒸汽的参数，节省了查找相关图表的时间。在绘制曲线时借助了 Origin 软件，凭借计算所得到的数据成功地绘制出了相关曲线。本文通过上述方法，最终得出了此次课题研究的成果，掌握了机组复合滑压运行方式的特点，绘制出了可以指导机组实际运行的滑压曲线。最重要的是，学会了相关的知识，以后我投入工作后在工程实际中也能学以致用。同时本文基于此次课题研究在结尾处还做出了一定展望。

关键词：凝汽式；汽轮机；复合滑压运行；滑压曲线

**Title: Drawing of Sliding Pressure Curve for Composite Sliding
Pressure Operation of Condensed Steam Turbine**

Abstract

At present, large-scale thermal power units basically have to deep peak-shaving, it requires the unit to have the ability to operate under deep variable operating conditions, on the basis of this, the-pressure operation mode can guarantee the safety of the unit and improve the economy. This paper studies the subject, aimed at condensed steam turbine to understand its characteristics and be able to calculate the relevant parameters according to the original data and master the method of drawing the characteristic curve of adjustment stage and the characteristic curve of compound sliding pressure operation, drawing a reasonable curve. This paper first makes a comprehensive analysis of the operation mode of composite sliding pressure, including its specific operation mode, the reasons and significance of adopting the relevant methods, and what benefits this way can bring to the operation of the unit, etc. Then this paper has absorbed the calculation method of the variable working condition of steam turbine and the calculation method of the characteristic parameter of regulating stage in the book and related literature, performing a large number of iterative calculations, the μ — ε characteristic curve of turbine regulating stage is drawn firstly, to get the pressure ratio. Combined with the iterative calculation, the sliding pressure curve of composite sliding pressure operation is drawn step by step. Part of the calculation in the instance, a case study of a 600 MW unit, drawing a μ — ε characteristic curve of turbine regulating stage, the characteristic curve of composite sliding pressure of condensed steam turbine is also drawn reasonably. The parameters of steam are obtained by means of the software for calculating the characteristic parameters of water and steam, which saves time to find relevant charts. Drawing curves with Origin software, the correlation curves were successfully drawn

from the calculated data. Through the above method, this paper

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