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高电压技术

大型变压器现场加热干燥方法的研究与应用

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摘要： 大型变压器现场安装过程中，防止受潮是最关键的环节。目前现场干燥处理的方法为滤油机热油循环法，处理时间长、效率低，尤其在环境温度较低时，无法加热到工艺要求温度，从而难以达到理想的干燥效果。为满足大型变压器现场干燥的需求，提出了采用短路法进行变压器的现场加热干燥，即将低压绕组短路，对高压侧绕组施加额定电流，使高、低压绕组发热，从内部将器身绝缘均匀加热到指定温度，来达到加热干燥的效果；并在此基础上，研制了适用于大型变压器的短路法现场加热干燥装置。该方法及装置已成功应用于特高压换流变压器的现场加热干燥处理，且效果显著。应用结果表明：短路法的加热功率、效率高，干燥效果好，是适用于大型变压器现场加热干燥的有效方法。

关键词： 大型变压器 现场加热方法 现场加热装置 短路法 现场干燥

Study on the On-site Heating Method for Large-scale Power Transformers

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Abstract: Moisture is one of the most important factors that can largely affect the insulation of large-scale power transformers, especially converter transformers. At present, the on-site drying method for the power transformers is still hot oil circulation method using vacuum oil filter, which costs a long time and has poor effect when the environment temperature is low. In order to meet the requirement of on-site heating for large-scale power transformers, short circuit method was proposed as the on-site drying method. The LV winding is short-circuited, and ac current equal to the nominal current is applied to the HV winding. The heat produced by the load loss can heat the winding insulation uniformly to the designated temperature uniformly so as to dry the insulation. A set of short circuit heating device was developed. The method and the device had been applied on the UHV converter transformer, and had achieved remarkable effects. All applications indicate that short circuit method is a proper method for on-site heating of large-scale transformers for its high heating efficiency and perfect drying effect.

Keywords: large-scale transformer on-site heating measures on-site heating device short-circuit method on-site insulation drying

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