

عنوان مقاله:

Prediction of hot-spot phenomena in disc-type transformer windings with zigzag coolant flow path

محل انتشار:

هفدهمین کنفرانس دینامیک شاره ها (سال: 1396)

تعداد صفحات اصل مقاله: 10

نویسندگان:

Fahimeh Hamed - *M.Sc. student, Energy Systems Engineering, Alzahra University*

Hamed Moqtaderi - *Assistant Prof., Faculty of Engineering, Alzahra University*

خلاصه مقاله:

Heat transfer phenomena and hot-spot temperature and location in disc-type transformer windings have attracted many researches from both industry and academy in recent years, due to noticeable effects on transformers endurance, reliability and functionality. This paper focuses on developing more accurate numerical (CFD) model for winding disks. These discs constitute from copper wires and paper insulators. This inhomogeneity makes computational costs very high because of many small sub-domains needed to handle different properties in terms of conductivity and density along with temperature dependency of thermos-physical properties. In current work a different method proposed to tackle this problem without encountering huge amount of computations. A minimal 3D model that represent a 2D model has been developed in Ansys-CFX v16. The main concern and contribution of the current research was the computational volume and problem solving time reduction without any considerable deviation in numerical results. Based on such approximation, several parameter studies have been also carried out. The results including hot-spot temperature and location showed acceptable agreement with verified simulation results .published in the literature

کلمات کلیدی:

Transformer, Hotspot temperature, Zigzag cooling path

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/690906>

