

Title (en)

Electro-magnetic device comprising a cooling arrangement including a specifically arranged thermosyphon

Title (de)

Elektromagnetische Vorrichtung umfassend eine Kühlanordnung mit spezifisch angeordnetem Thermosyphon

Title (fr)

Dispositif électromagnétique comprenant un agencement de refroidissement comprenant un thermosiphon agencé spécifiquement

Publication

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Application

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Priority

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Abstract (en)

[origin: EP2682957A1] A cooled electro-magnetic device (1) such as a medium frequency transformer or an inductor having improved cooling characteristics is proposed. The electro-magnetic device comprises a core (3), an electrically conductive winding (5) and a cooling arrangement (7). The cooling arrangement (7) comprises at least one thermosyphon (9, 21) and a blower (11). The thermosyphon (9, 21) comprises an evaporator (13), a condenser (15) and connection piping (17). The thermosyphon (9, 21) and the blower (11) are arranged such that the evaporator (13) is in thermal conductive contact with the core (3) and the condenser and the electrically conductive winding (5) are arranged in relation to the blower (11) such that cooling gas of a gas flow (19) generated by the blower (11) cools both the condenser (15) and the winding (5). Accordingly, particularly in electro-magnetic devices such as medium frequency transformers where thermal losses are not limited to occur in a single component but are typically distributed and partly occur in the core (3) and in the winding (5), the proposed cooling arrangement (7) enables to fulfill cooling requirements of both components by providing a single airflow (19) directly cooling the winding (5) and indirectly cooling the core (3) via the thermosyphon (9, 21).

IPC 8 full level

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CPC (source: EP)

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Cited by

CN105070474A; CN114121432A; US10276291B2; CN108682537A; CN111033684A; EP3602604A4; WO2016116204A1

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