Title (en)

CONTROL ROD DRIVE MECHANISM WITH HEAT PIPE COOLING

Title (de)

STEUERSTABANTRIEBSMECHANISMUS MIT KÜHLROHRKÜHLUNG

Title (fr)

MÉCANISME D'ENTRAÎNEMENT DE TIGE DE COMMANDE AVEC REFROIDISSEMENT DE CALODUC

Publication

EP 3857568 A1 20210804 (EN)

Application

EP 18836573 A 20181221

Priority

- US 201862736250 P 20180925
- US 2018067128 W 20181221

Abstract (en)

[origin: WO2020068146A1] A cooling system for a nuclear reactor control rod drive mechanism (CRDM) includes an evaporation section located within or next to the CRDM and a condensation section fluidly coupled to the evaporation section. The cooling system may include a set of heat fins that extend up from drive coils in the CRDM and heat pipes that extend through the drive coils and heat fins. A fluid evaporates while in the evaporation section of the heat pipes from heat generated by the CRDM and moves out of the evaporation section into the condensation section in the heat fins. The fluid cools and condensates while in the condensation section, recirculating back into the evaporation section. This passive natural circulation cooling system reduces or eliminates the number of water hoses, piping, and other water pumping equipment typically used for cooling CRDM, or the requirement for air cooling, increasing nuclear reactor reliability and simplifying nuclear reactor operation and maintenance.

IPC 8 full level

G21C 7/12 (2006.01); **G21C 15/02** (2006.01); **G21C 15/257** (2006.01); **G21D 1/02** (2006.01)

CPC (source: EP KR)

G21C 7/12 (2013.01 - EP KR); **G21C 15/02** (2013.01 - EP KR); **G21C 15/257** (2013.01 - EP KR); **G21D 1/02** (2013.01 - EP KR); Y02E 30/00 (2013.01 - EP); Y02E 30/30 (2013.01 - EP KR)

Citation (search report)

See references of WO 2020068146A1

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Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

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