

Title (en)  
Heat exchanger with coaxial U-tubes and intermediate circulation of neutral gas, and fast neutron reactor comprising such a heat exchanger.

Title (de)  
Wärmetauscher mit koaxialen U-Rohren und Zwischenkreislauf von neutralem Gas und schneller Neutronenreaktor mit solchem Wärmetauscher.

Title (fr)  
Echangeur de chaleur à tubes en U coaxiaux à écoulement intermédiaire de gaz neutre et réacteur nucléaire à neutrons rapides comportant des échangeurs de ce type.

Publication  
**EP 0206921 A1 19861230 (FR)**

Application  
**EP 86401303 A 19860616**

Priority  
FR 8509327 A 19850619

Abstract (en)  
1. Heat exchanger with internal circulation of a first fluid, comprising - a bundle of twin U tubes (12) immersed in a heating liquid heat-transfer fluid (34), this bundle consisting of inner tubes (14) and of outer tubes (16) delimiting an annular space in which the first fluid circulates, and comprising two straight branches (12a, 12b) connected by a curved lower part (12c) ; - an entry chamber for the first fluid (36a) and an exit chamber for the first fluid (36b), these chambers being delimited at their lower end by a first fluid/heat-transfer fluid tube plate (20a, 20b) to which the corresponding ends of the outer tubes (16) are fastened in a leakproof manner ; - at least one entry chamber for a heated fluid (44a) and at least one exit chamber for the said heated fluid (44b), which are separated from the entry chamber for the first fluid (36a) and from the exit chamber for the first fluid (36b), respectively, by a heated fluid/first fluid tube plate (42a, 42b), to which the corresponding ends of the inner tubes (14) are fastened in a leakproof manner ; characterized in that the first fluid is a gas, the exchanger being suitable for being mounted in a vessel (30, 30') containing the heat-transfer fluid (34), so that the U tubes (12) are immersed in this fluid and each has a vertical leg (12a) with descending heated fluid and a vertical leg (12b) with ascending heated fluid ; - two shells (54a, 54b) surrounding each of the vertical legs (12a, 12b) of the bundle respectively, these shells being fastened to the gas/heat-transfer fluid tube plates (20a, 20b), which are open at their lower ends and equipped with entry windows for the heat-transfer fluid (56a, 56b, 62a, 62b) at their upper ends ; - a transition component (64) fastened to the shells (54a, 54b) below the entry windows for the heat-transfer fluid, to separate, in the said vessel, the heat-transfer fluid entering the exchanger through the entry windows from the heat-transfer fluid leaving through the lower ends of the shells.

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IPC 8 full level  
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Citation (search report)

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