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(54) Title: ACTIVE COOLING OF STRUCTURES IMMERSSED IN PLASMA

(57) Abstract: A fusion reactor includes an enclosure having a first end, a second end, and a midpoint substantially equidistant between the first and second ends of the enclosure. The fusion reactor includes two internal magnetic coils suspended within the enclosure and positioned on opposite sides of the midpoint of the enclosure, one or more encapsulating magnetic coils positioned on each side of the midpoint of the enclosure, two mirror magnetic coils positioned on opposite sides of the midpoint of the enclosure, and one or more cooling lines within each of the internal magnetic coils. The cooling lines carry a coolant and are operable to remove heat from the internal magnetic coils. The one or more encapsulating magnetic coils and the two mirror magnetic coils are coaxial with the internal magnetic coils. The magnetic coils are operable, when supplied with electric currents, to form magnetic fields for confining plasma within the enclosure.

