

Title (en)
Cryogenic cooling apparatus

Title (de)
Kryogene Kühlvorrichtung

Title (fr)
Appareil de refroidissement cryogénique

Publication
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Application
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Abstract (en)
The present invention provides a cryogenic cooling apparatus (1; 10; 30) that is suitable for cooling a rotating cryogenic component such as a HTS winding or a LTS winding. The apparatus (1; 10; 30) comprises: a sealable vessel (2; 12) containing a cryogenic fluid (3; 13) within which the cryogenic component may be located; a conduction element (4; 14) having a first end and a second end, the conduction element (4; 14) located through a wall of the vessel (2; 12) such that the first end is located within the vessel (2; 12) for immersion in the cryogenic fluid (3; 13) and the second end is outside the vessel (2; 12); and a cooling machine (7; 17), such as a cold head, located external to the vessel (2; 12) and connected to the second end of the conduction element (4; 14). The apparatus (1; 10; 30) is advantageous as it allows the cooling of a rotating cryogenic component by immersion in a cryogenic fluid (3; 13) wherein the cryogenic fluid (3; 13) may be completely contained in the sealable vessel (2; 12). The present invention also provides a method of cooling a cryogenic fluid in a sealable vessel (2; 12) using the apparatus (1; 10; 30) of the present invention. The method comprises the steps of immersing the first end of the conduction element (4; 14) in the cryogenic fluid (3; 13); and operating the cooling machine (7; 17) to cool the second end of the conduction element (4; 14) to cool the conduction element (4; 14).

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- [X1] WO 2009134569 A2 20091105 - AMERICAN SUPERCONDUCTOR CORP [US], et al
- [X1] US 4745760 A 19880524 - PORTER WARREN W [US]
- [X1] JP 2003111745 A 20030415 - HITACHI MEDICAL CORP
- [X1] US 2006237548 A1 20061026 - HARTNEY NICHOLAS A [US], et al
- [X1] US 2010058790 A1 20100311 - JUNG JE HEON [KR], et al

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