

Title (en)  
Cryogenic refrigerator with improved thermal-coupling device.

Title (de)  
Kryogene Kühlvorrichtung mit verbesserter thermischer Verbindung.

Title (fr)  
Refroidisseur cryogénique à liaison thermique perfectionnée.

Publication  
**EP 0059272 A1 19820908 (FR)**

Application  
**EP 81200646 A 19810612**

Priority  
FR 8104070 A 19810226

Abstract (en)  
1. Cryogenic cooling device of the type comprising a probe (4) provided with an extremity (5) cooled by expansion of a gas and closed by a bottom (5a), a cryostat (6) with double envelope under vacuum, the inner envelope (8) of which formed by a cylindrical wall (8a) closed by a bottom (8b) is adapted to contain the cooled extremity (5) of the probe, a sample to be cooled (9), in particular one or more infrared detectors, fixed in the double envelope of the cryostat on the bottom (8b) of the inner envelope, and a thermal connecting piece (10) of good thermal conductivity located in the free space between said bottom (5a) of the probe and the bottom (8b) of the inner envelope (8) of the cryostat, the cryogenic cooling device being characterized in that the thermal connecting piece : a) is in one piece, b) comprises a central securing heel (11) by which it is fixed on the bottom (5a) closing the extremity of the probe, c) has a general revolution form about the longitudinal axis of the probe adapted to impart to it a radial inherent elasticity, d) is provided with peripheral surfaces coming to bear under the effect of the said elasticity against the cylindrical wall (8a) of the inner envelope on the periphery of the aforementioned free space between the bottom (5a) of the probe and the bottom (8b) of the inner envelope of the cryostat.

Abstract (fr)  
Un refroidisseur cryogénique qui comprend une sonde (4) pourvue d'une extrémité (5) refroidie par détente de gaz est disposée dans une cryostat (6) à double enveloppe (7, 8) sous vide. Une pièce de liaison thermique (10) est disposée entre le fond de la sonde (5) et l'enveloppe interne (8) du cryostat. Cette pièce présente une élasticité radiale qui lui est notamment conférée par une pluralité de fentes longitudinales, afin de venir en appui contre la paroi cylindrique de l'enveloppe interne (8).

IPC 1-7  
**F25D 3/10; F25J 1/00**

IPC 8 full level  
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CPC (source: EP)  
**F25D 19/006** (2013.01); **F25J 1/0276** (2013.01)

Citation (search report)  
• US 3693374 A 19720926 - JUVONEN TOIVO A, et al  
• US 4194119 A 19800318 - MACKENZIE RONALD [US]  
• US 3807188 A 19740430 - LAGODMOS G  
• FR 1468862 A 19670210 - AIR LIQUIDE  
• US 3435137 A 19690325 - ALTSHULER THOMAS L, et al  
• US 3306075 A 19670228 - COWANS KENNETH W

Cited by  
FR2699263A1; EP0119604A1; EP0726582A1; EP1540236A4; CN102538551A; EP0285491A1; FR2613046A1; WO9951922A1

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