

Title (en)
PISTON PUMP FOR DELIVERING CRYOGENIC LIQUID

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EP 0252296 A3 19880803 (DE)

Application
EP 87108051 A 19870604

Priority
DE 3621726 A 19860628

Abstract (en)
[origin: US4813342A] A reciprocating pump for a cryogenic fluid includes a pump cylinder made of a material with low thermal expansivity, a piston displaceable in the pump cylinder, and self-lubricating piston rings made of polytetrafluorethylene held on the circumferential surface of the piston. The rings have a larger thermal expansivity than the pump cylinder. The arrangement allows optimum matching of piston rings and pump cylinder at cryogenic fluid pumping temperatures. The piston has a core made of a material with relatively large thermal expansivity which is surrounded by a spacer sleeve made of a material with a low coefficient of thermal expansion. The core protrudes on both sides from the spacer sleeve and has expanding regions increasing conically towards its free ends. The piston rings surround the core in the expanding regions and are supported against the end faces of spacer sleeve. The conical expanding regions bias the rings toward the cylinder at low temperatures to insure effective sealing.

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IPC 8 full level
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CPC (source: EP US)
F04B 15/08 (2013.01 - EP US); **Y10S 277/931** (2013.01 - EP US); **Y10S 417/901** (2013.01 - EP US)

Citation (search report)
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• [A] US 4226169 A 19801007 - MAZUR PETER O, et al
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• [A] PATENT ABSTRACTS OF JAPAN, Unexamined Applications, Field M, Band 6, Nr. 130, 16. Juli 1982 The Patent Office Japanese Government page 146 M 143; JP-A-57 056 678 (Shiyouichi)

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Designated contracting state (EPC)
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DOCDB simple family (publication)
EP 0252296 A2 19880113; **EP 0252296 A3 19880803**; **EP 0252296 B1 19891115**; DE 3621726 A1 19880114; DE 3621726 C2 19881208; JP H0786349 B2 19950920; JP S6325380 A 19880202; US 4813342 A 19890321

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EP 87108051 A 19870604; DE 3621726 A 19860628; JP 15795487 A 19870626; US 6325187 A 19870617