

Title (en)
MULTISTAGE CENTRIFUGAL PUMP FOR THE TRANSPORT OF LIQUID GAS

Publication
EP 0222233 A3 19880824 (DE)

Application
EP 86114824 A 19861024

Priority
DE 3539251 A 19851106

Abstract (en)
[origin: US4753571A] A liquefied gas pump wherein a vessel contains a supply of liquefied gas which is pumped from its inlet to its outlet by a multi-stage upright centrifugal pump whose first stage is immersed in the supply of liquefied gas in the vessel. The shaft seal at the upper end of the pump housing is held out of contact with liquefied gas by a first flow restrictor above the last stage of the pump, an expansion chamber which is filled with liquefied gas and is located above the first flow restrictor, a gas collecting chamber between the expansion chamber and the seal, and a second flow restrictor which is disposed between the two chambers and prevents penetration of liquefied gas from the expansion chamber into the collecting chamber. The latter is connected with the vessel and/or with a gas collecting tank. The expansion chamber is connected with the second and/or third stage of the pump in order to ensure that it is filled with liquefied gas.

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F04D 29/10; **F04D 13/08**

IPC 8 full level
F04D 13/08 (2006.01); **F04D 29/10** (2006.01)

CPC (source: EP US)
F04D 13/083 (2013.01 - EP US); **F04D 29/10** (2013.01 - EP US)

Citation (search report)
• [A] EP 0045483 A2 19820210 - SIHI GMBH & CO KG [DE]
• [A] EP 0150515 A1 19850807 - NERATOOM [NL]
• [A] US 3792935 A 19740219 - RANDELL F
• [A] US 2281650 A 19420505 - WISLICENUS GEORGE F
• [A] GB 637005 A 19500510 - JONKOPINGS MEK WERKSTADS ATKIE

Cited by
CN109185175A; US10955089B2; EP3199859A1; RU2727773C2; WO2017129389A1

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