

Title (en)
METHOD AND DEVICE FOR PUMPING WITH REDUCED POWER USE

Title (de)
PUMPVERFAHREN UND VORRICHTUNG MIT VERRINGERTEM ENERGIEVERBRAUCH

Title (fr)
PROCEDE ET DISPOSITIF DE POMPAGE A CONSOMMATION D'ENERGIE REDUITE

Publication
EP 2501936 B1 20160727 (FR)

Application
EP 10790462 A 20101027

Priority
• FR 0958138 A 20091118
• FR 2010052305 W 20101027

Abstract (en)
[origin: WO2011061429A2] The pumping device comprises: a dry rough vacuum pump provided with a gas inlet opening connected to a vacuum chamber and moreover has a gas outlet opening leading into a pipe; a delivery check valve placed in the pipe at the outlet of the dry rough vacuum pump; and an ejector mounted in parallel relative to the delivery check valve. The pumping method includes the following steps: pumping the gases, contained in the vacuum chamber, by means of the dry rough vacuum pump through the gas inlet opening; connecting the gas outlet opening of the dry rough vacuum pump to an ejector; measuring the electrical power used by the dry rough vacuum pump and the pressure of the gases in the pipe at the outlet of the dry rough vacuum pump; setting in motion the ejector, after a time delay, when the pressure of the gases at the outlet of the dry rough vacuum pump has exceeded a rising edge set value and when the electrical power used by the dry rough vacuum pump exceeds a rising edge set value; stopping the ejector when the electrical power used by the dry rough vacuum pump exceeds a falling edge set value and when the pressure of the gases in the pipe at the outlet of the dry rough vacuum pump exceeds a falling edge set value.

IPC 8 full level
F04C 25/02 (2006.01); **F04C 23/00** (2006.01); **F04C 28/00** (2006.01); **F04F 5/48** (2006.01); **F04F 5/54** (2006.01)

CPC (source: EP US)
F04C 23/005 (2013.01 - EP US); **F04C 25/02** (2013.01 - EP US); **F04D 15/0254** (2013.01 - EP US); **F04D 15/0281** (2013.01 - EP US); **F04D 19/02** (2013.01 - EP US); **F04D 19/046** (2013.01 - EP US); **F04D 25/16** (2013.01 - EP US); **F04D 27/004** (2013.01 - EP US); **F04F 5/20** (2013.01 - EP US); **F04F 5/54** (2013.01 - EP US); **F04C 2220/12** (2013.01 - EP US); **F04C 2270/02** (2013.01 - EP US)

Citation (examination)
US 2004173312 A1 20040909 - SHIBAYAMA KOUJI [JP], et al

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
FR 2952683 A1 20110520; FR 2952683 B1 20111104; CN 102713299 A 20121003; CN 102713299 B 20160427; EP 2501936 A2 20120926; EP 2501936 B1 20160727; JP 2013511644 A 20130404; JP 5769722 B2 20150826; KR 101778318 B1 20170913; KR 20120101000 A 20120912; TW 201139850 A 20111116; TW I507604 B 20151111; US 2012219443 A1 20120830; US 9175688 B2 20151103; WO 2011061429 A2 20110526; WO 2011061429 A3 20120712

DOCDB simple family (application)
FR 0958138 A 20091118; CN 201080052223 A 20101027; EP 10790462 A 20101027; FR 2010052305 W 20101027; JP 2012539382 A 20101027; KR 20127012734 A 20101027; TW 99137629 A 20101102; US 201013505337 A 20101027