

Title (en)

ADJUSTING DISCHARGE FLOW OF A MULTISTAGE PUMP BY SETTING BALANCE DRUM CLEARANCE

Title (de)

ANPASSUNG DER AUSSTRÖMMENGE EINER MEHRSTUFIGEN PUMPE DURCH EINSTELLUNG DES SPIELS DES ENTLASTUNGSKOLBENS

Title (fr)

RÉGLAGE DU DÉBIT DE REFOULEMENT D'UNE POMPE À ÉTAGES MULTIPLES EN RÉGLANT LE DÉGAGEMENT DU PISTON D'ALLÈGEMENT

Publication

**EP 3936726 A1 20220112 (EN)**

Application

**EP 20184583 A 20200707**

Priority

EP 20184583 A 20200707

Abstract (en)

A centrifugal pump for conveying a fluid is proposed, comprising a pump housing (2) with an inlet (3) at a suction side (S) and an outlet (4) at a discharge side (D), a hydraulic unit (5) with at least one impeller (51, 52) for conveying the fluid from the inlet (3) to the outlet (4), a shaft (6) for rotating the impeller (51, 52) about an axial direction (A), a balance drum (7) fixedly connected to the shaft (6) and arranged adjacent to the at least one impeller (51, 52), wherein the balance drum (7) defines a front side (71) facing the at least one impeller (51, 52) and a back side (72), wherein a relief passage (73) is provided between the balance drum (7) and a stationary part (21) configured to be stationary with respect to the pump housing (2), wherein the relief passage (73) extends from the front side (71) to the back side (72), wherein a balance line (10) is provided, configured for discharging the fluid from the back side (72), wherein the hydraulic unit (5) is configured to generate a presettable hydraulic flow (QH), being larger than a presettable discharge flow (QD) passing through the outlet(4), wherein the relief passage (73) is configured such that a balance flow (QB) passes through the relief passage (73), and wherein the balance flow (QB) is adjusted to reduce the hydraulic flow (QH) to the discharge flow (QD). In addition, a method for controlling a discharge flow (QD) of a fluid is proposed.

IPC 8 full level

**F04D 1/06** (2006.01); **F04D 29/041** (2006.01)

CPC (source: EP)

**F04D 1/06** (2013.01); **F04D 29/0416** (2013.01)

Citation (search report)

- [X1] DE 1184642 B 19641231 - KLEIN SCHANZLIN & BECKER AG
- [X1] WO 2011078680 A1 20110630 - HANCOCK WILLIAM PAUL [NO]
- [X1] US 10215185 B2 20190226 - FELIX THOMAS [CH], et al
- [X1] EP 1378667 A2 20040107 - HERMETIC PUMPEN GMBH [DE]
- [XAI] DE 1094592 B 19601208 - KLEIN SCHANZLIN & BECKER AG

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

Designated extension state (EPC)

BA ME

DOCDB simple family (publication)

**EP 3936726 A1 20220112**

DOCDB simple family (application)

**EP 20184583 A 20200707**