

Title (en)

METHOD FOR DETECTING AN ABNORMAL OPERATING STATE OF A PUMP UNIT

Title (de)

VERFAHREN ZUR DETEKTION EINES ABNORMALEN BETRIEBSZUSTANDS EINES PUMPENAGGREGATS

Title (fr)

PROCÉDÉ DE DÉTECTION D'UN ÉTAT DE FONCTIONNEMENT ANORMAL D'UN GROUPE DE POMPAGE

Publication

EP 3449132 B1 20230816 (DE)

Application

EP 18719751 A 20180327

Priority

- DE 102017004097 A 20170428
- EP 2018000120 W 20180327

Abstract (en)

[origin: WO2018197033A1] The invention relates to a method for detecting an abnormal operating state of a rotational-speed-controllable pump unit (1) operated at a specifiable rotational speed (n_0). A periodic excitation signal ($f_A(t)$) of a certain frequency (f) is applied to a manipulated variable ($nsoll$) of the pump unit (1) in such a way that a hydraulic variable ($H, \Delta p$) of the pump unit (1) is modulated. From a mechanical and/or electrical variable (P_{el}) of the pump unit (1) as a system response ($X(t)$) to the excitation signal ($f_A(t)$), an evaluation signal ($I(t_0), I(t)$) is then calculated and it is determined therefrom whether an abnormal operating state exists. The invention further relates to pump electronics for the open-loop and/or closed-loop control of the target rotational speed of a pump unit (1), which pump electronics are designed to carry out the method, and to a pump unit having such pump electronics.

IPC 8 full level

F04D 15/02 (2006.01); **F04D 15/00** (2006.01); **F04D 29/66** (2006.01)

CPC (source: EP)

F04B 49/065 (2013.01); **F04B 51/00** (2013.01); **F04D 15/0066** (2013.01); **F04D 15/0077** (2013.01); **F04D 15/0236** (2013.01); **F04D 29/669** (2013.01); **F04B 2201/1201** (2013.01); **F04B 2201/1202** (2013.01); **F04B 2203/0201** (2013.01)

Cited by

CN113696839A

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)

DE 102017004097 A1 20181031; CN 110192036 A 20190830; CN 110192036 B 20210706; EP 3449132 A1 20190306; EP 3449132 B1 20230816; WO 2018197033 A1 20181101

DOCDB simple family (application)

DE 102017004097 A 20170428; CN 201880007402 A 20180327; EP 18719751 A 20180327; EP 2018000120 W 20180327