

Title (en)  
GEROTOR PUMP

Title (de)  
GEROTORPUMPE

Title (fr)  
POMPE GÉROTOR

Publication  
**EP 3230592 B1 20201202 (DE)**

Application  
**EP 15831041 A 20151203**

Priority  
• DE 102014018179 A 20141209  
• DE 2015000574 W 20151203

Abstract (en)  
[origin: WO2016091245A1] The invention relates to a gerotor pump for rotors with tooth tip diameters of from approximately 20 to approximately 40 mm which operate at delivery pressures in the range from 3 to 20 bar and are used to deliver barely lubricating media, such as, for example, an oil pump in the automotive sector for delivering engine oils of low viscosity. The invention is based on the problem of developing a gerotor pump with a sleeve-guided rotor, which gerotor pump, if low-viscosity delivery media are used, such as "thin low-viscosity oil", in conjunction with the use in relatively small pump systems, the rotors of which have tooth tip diameters of from approximately 20 to approximately 40 mm and the delivery pressures of which lie in the range from 3 to 20 bar, and which considerably reduce the disproportionate rise in the drive torque with a simultaneous loss of the degree of efficiency at low rotational speeds in the range from 500 to 1000 rpm and high delivery pressures. The gerotor pump according to the invention, with side walls (6) which are arranged on both sides of the end walls (5) of the gear wheels which mesh with one another, wherein in each case one circularly arcuate pressure kidney (8) and, lying opposite, a circularly arcuate suction kidney (9) are arranged in at least one of said side walls (6), is characterized in that in each case one lubricating surface (11) which either begins in the tooth centre plane (M) or begins "offset" in the rotational direction (R) of the rotor (1) in front of the tooth centre plane (M) and is inclined in the rotational direction (R) of the rotor (1) with respect to the surface plane of the end wall (5) of the rotor (1) is arranged at each tooth (10) over the tooth height (H) thereof on that end wall (5) of the rotor (1) which is adjacent to the pressure kidney (8) and the suction kidney (9), which lubricating surface (11) is formed from a planar surface or a plurality of planar part surfaces which adjoin one another and in each case enclose an angle of inclination ( $\alpha$ ,  $\beta$ ,  $\gamma$ ...) which lies in each case in the range from 0.2° to 7° with respect to the surface plane of the end wall (5) of the rotor (1).

IPC 8 full level  
**F04C 2/08** (2006.01); **F04C 15/00** (2006.01)

CPC (source: CN EP KR US)  
**F01C 21/02** (2013.01 - US); **F01C 21/106** (2013.01 - US); **F04C 2/084** (2013.01 - CN EP KR US); **F04C 2/102** (2013.01 - CN EP KR US); **F04C 15/0088** (2013.01 - CN EP KR US); **F04C 2240/20** (2013.01 - CN EP KR US); **F04C 2240/56** (2013.01 - CN EP KR US); **F05C 2203/08** (2013.01 - CN EP KR US)

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 102014018179 B3 20160218**; BR 112017010529 A2 20171226; CN 107250541 A 20171013; CN 107250541 B 20190326; EP 3230592 A1 20171018; EP 3230592 B1 20201202; JP 2017537265 A 20171214; JP 6639505 B2 20200205; KR 20170093218 A 20170814; US 10451056 B2 20191022; US 2017335844 A1 20171123; WO 2016091245 A1 20160616

DOCDB simple family (application)  
**DE 102014018179 A 20141209**; BR 112017010529 A 20151203; CN 201580065614 A 20151203; DE 2015000574 W 20151203; EP 15831041 A 20151203; JP 2017530743 A 20151203; KR 20177018791 A 20151203; US 201515534077 A 20151203