

Title (en)  
IMPELLER FOR CENTRIFUGAL PUMPS

Title (de)  
FLÜGELRAD FÜR ZENTRIFUGALPUMPEN

Title (fr)  
HÉLICE POUR POMPES CENTRIFUGES

Publication  
**EP 3271587 A4 20181017 (EN)**

Application  
**EP 16768970 A 20160318**

Priority  
• IT VI20150081 A 20150320  
• JP 2016059789 W 20160318

Abstract (en)  
[origin: WO2016153068A1] An impeller for centrifugal pumps has a first disk element, functionally arranged toward the inlet, which is coaxial to and faces a second disk element, which is functionally arranged toward the delivery and is connected rigidly to the first disk element by virtue of a series of angularly spaced vanes and is provided centrally with a means for fixing to a transmission shaft. The particularity of the present invention resides in that the impeller includes a series of openings formed in the substantially peripheral region of the second disk element, between pairs of adjacent vanes, substantially at the areas subjected to the greatest axial thrust.

IPC 8 full level  
**F04D 29/22** (2006.01); **F04D 1/06** (2006.01)

CPC (source: EP RU US)  
**F04D 1/06** (2013.01 - EP US); **F04D 29/041** (2013.01 - RU); **F04D 29/051** (2013.01 - RU); **F04D 29/2266** (2013.01 - EP RU US);  
**F04D 29/287** (2013.01 - RU); **F04D 29/30** (2013.01 - US); **F04D 17/08** (2013.01 - US)

Citation (search report)  
• [XI] JP S5472501 A 19790611 - HITACHI LTD  
• [X] US 3541607 A 19701117 - GREENE ROBERT RAYMOND  
• [X] US 3944406 A 19760316 - JAGUSCH LEONHARD, et al  
• See references of WO 2016153068A1

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)  
**WO 2016153068 A1 20160929**; BR 112017020084 A2 20190514; BR 112017020084 B1 20230314; CN 107429706 A 20171201;  
DK 3271587 T3 20230911; EP 3271587 A1 20180124; EP 3271587 A4 20181017; EP 3271587 B1 20230712; ES 2954939 T3 20231127;  
JP 2018508701 A 20180329; JP 6676651 B2 20200408; KR 102491363 B1 20230126; KR 20170129822 A 20171127; MY 193271 A 20220929;  
RU 2017135417 A 20190409; RU 2017135417 A3 20190717; RU 2709404 C2 20191217; TW 201638475 A 20161101; TW I725016 B 20210421;  
US 2018045213 A1 20180215

DOCDB simple family (application)  
**JP 2016059789 W 20160318**; BR 112017020084 A 20160318; CN 201680016266 A 20160318; DK 16768970 T 20160318;  
EP 16768970 A 20160318; ES 16768970 T 20160318; JP 2017548477 A 20160318; KR 20177029673 A 20160318;  
MY PI2017703305 A 20160318; RU 2017135417 A 20160318; TW 105108055 A 20160316; US 201615556179 A 20160318