

Title (en)
Friction vacuum pump

Title (de)
Reibungsvakuumpumpe

Title (fr)
Pompe à vide à friction

Publication
EP 2594803 B1 20160720 (DE)

Application
EP 12190912 A 20121031

Priority
DE 102011118661 A 20111116

Abstract (en)
[origin: EP2594803A1] The pump has a rotor (2) rotatably supported by a rolling bearing (4), and comprising a case (10) that is fastened at a hub (8). A stator (20) is concentrically arranged to the case under formation of a gap (30) with a gap width (100), where the gap width is decreased to the rolling bearing. A permanent magnet bearing is attached to an end (12) of the case for supporting the rotor, where another end (14) of the case is arranged at height of the rolling bearing. A turbo-molecular pumping structure is provided between the hub and the permanent magnet bearing.

IPC 8 full level
F04D 29/058 (2006.01); **F04D 19/04** (2006.01); **F04D 29/059** (2006.01); **F04D 29/52** (2006.01); **F04D 29/64** (2006.01); **F04D 29/32** (2006.01)

CPC (source: EP)
F04D 19/044 (2013.01); **F04D 29/058** (2013.01); **F04D 29/059** (2013.01); **F04D 29/522** (2013.01); **F04D 29/642** (2013.01); **F04D 19/046** (2013.01); **F04D 29/321** (2013.01); **F05D 2250/232** (2013.01); **F05D 2250/323** (2013.01)

Citation (examination)
DE 69003256 T2 19940113 - CIT ALCATEL [FR]

Citation (opposition)
Opponent : Leybold GmbH
• EP 1318309 A2 20030611 - BOC TECHNOLOGIES LTD [JP]
• DE 102009035332 A1 20110203 - PFEIFFER VACUUM GMBH [DE]
• JP 2001032789 A 20010206 - ANELVA CORP
• DE 69003256 T2 19940113 - CIT ALCATEL [FR]
• DE 10043235 A1 20020314 - LEYBOLD VAKUUM GMBH [DE]
• DE 10224604 A1 20031218 - LEYBOLD VAKUUM GMBH [DE]
• DE 102009021620 A1 20101118 - PFEIFFER VACUUM GMBH [DE]

Cited by
EP4212730A1; EP4273405A1

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)
EP 2594803 A1 20130522; EP 2594803 B1 20160720; DE 102011118661 A1 20130516; JP 2013104430 A 20130530; JP 5898050 B2 20160406

DOCDB simple family (application)
EP 12190912 A 20121031; DE 102011118661 A 20111116; JP 2012252248 A 20121116