

Title (en)
Turbocharger

Title (de)
Turbolader

Title (fr)
Turbocompresseur

Publication
EP 1672177 B1 20111123 (DE)

Application
EP 04029586 A 20041214

Priority
EP 04029586 A 20041214

Abstract (en)
[origin: EP1672177A1] Turbocharger (1) has a turbine case (2) and a bearing housing (3) in between which a shaft (W) is arranged which carries the case of variable geometry turbine (C). Compressor wheel has a spring washer (4) in between the case and the bearing housing which consists of two different materials (5,6). Turbine has thermal protection to maintain elevated temperature of supercharged air. An independent claim is also included for the spring washer.

IPC 8 full level
F01D 17/16 (2006.01)

CPC (source: EP KR US)
F01D 17/16 (2013.01 - EP KR US); **F02B 37/22** (2013.01 - KR); **F02B 37/24** (2013.01 - KR); **F05D 2220/40** (2013.01 - EP US); **F05D 2240/70** (2013.01 - EP US); **F05D 2250/71** (2013.01 - EP US); **F05D 2260/231** (2013.01 - EP US); **F05D 2260/30** (2013.01 - EP US)

Cited by
DE102018218395A1; WO2006133793A1; DE102009009130A1; DE102009009130B4; EP2514945A4; CN101922345A; EP2278127A3; EP3401526A4; EP2143910A1; DE102008032808A1; EP3680456A1; DE102008064299A1; US11306613B2; DE102022105348A1; DE102008058502A1; WO2019090232A1; WO2017040022A1; US10927698B2; US9121300B2; US11015478B2; JP2008544134A; EP2514945B1

Designated contracting state (EPC)
DE FR GB IT NL

DOCDB simple family (publication)
EP 1672177 A1 20060621; **EP 1672177 B1 20111123**; CN 1807847 A 20060726; CN 1807847 B 20111005; JP 2006170200 A 20060629; JP 4851178 B2 20120111; KR 101149083 B1 20120525; KR 20060067864 A 20060620; US 2006127244 A1 20060615; US 7600969 B2 20091013

DOCDB simple family (application)
EP 04029586 A 20041214; CN 200510131722 A 20051213; JP 2005355641 A 20051209; KR 20050122793 A 20051213; US 30006605 A 20051214