Title (en)

TURBO-MACHINE HAVING AT LEAST TWO COUNTER-ROTATABLE ROTORS AND HAVING MECHANICAL TORQUE COMPENSATION

Title (de)

STRÖMUNGSMASCHINE MIT ZUMINDEST ZWEI KONTRAROTIERBAREN ROTOREN UND MECHANISCHEM MOMENTENAUSGLEICH

Title (fr)

TURBOMACHINE PRESENTANT AU MOINS DEUX ROTORS TOURNANT EN SENS OPPOSES ET UNE COMPENSATION MECANIQUE DU COUPLE

Publication

EP 2279112 A1 20110202 (DE)

Application

EP 09753819 A 20090520

Priority

- EP 2009056156 W 20090520
- DE 102008025210 A 20080527

Abstract (en)

[origin: WO2009144164A1] A turbo-machine (1, 40) having at least two rotors (10, 11) which are mounted so as to be rotatable in opposite directions relative to one another about a rotational axis (7) and on which are arranged blades (14) or vanes, having a rotatably mounted machine shaft (15) and having a drive mechanism (16) which connects the machine shaft (15) to the at least two rotors (10, 11) and which converts a rotational movement of the machine shaft (15) into rotational movements of the rotors (10, 11) in opposite directions relative to one another or vice versa, is designed to utilize the hydrodynamic advantages of counter-rotating rotors yet at the same time have comparatively low mechanical complexity and component density and therefore increased reliability. This is possible according to the invention in that the turbo-machine (1, 40) has a housing (2) which forms a duct (3) for a flow of a fluid, wherein the rotors (10, 11) are arranged in series in the duct (3) in the flow direction (6) of the fluid, the machine shaft (15) and the rotors (10, 11) are of annular design and are rotatably mounted in the housing (2), and wherein the annular rotors (10, 11) have in each case a ring inner side (12) and a ring outer side (13), wherein the blades (14) or vanes are arranged on the ring inner side (12).

IPC 8 full level

F04D 29/18 (2006.01); **B63H 1/16** (2006.01); **B63H 5/10** (2006.01); **F04D 19/02** (2006.01); **F04D 25/02** (2006.01)

CPC (source: EP US)

B63H 1/16 (2013.01 - EP US); **B63H 5/10** (2013.01 - EP US); **F04D 13/021** (2013.01 - EP); **F04D 19/024** (2013.01 - US); **F04D 25/02** (2013.01 - EP US); B63H 2001/165 (2013.01 - EP US); B63H 2023/005 (2013.01 - EP US)

Citation (search report)

See references of WO 2009144164A1

Cited by

RU2617622C1

Designated contracting state (EPC)

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 SE SI SK TR

Designated extension state (EPC)

AL BA RS

DOCDB simple family (publication)

WO 2009144164 A1 20091203; **WO 2009144164 A9 20100520**; DK 2279112 T3 20130729; EP 2279112 A1 20110202; EP 2279112 B1 20130424; ES 2409113 T3 20130625; KR 101205147 B1 20121126; KR 20120096957 A 20120903; US 2011074158 A1 20110331; US 8487466 B2 20130716

DOCDB simple family (application)

EP 2009056156 W 20090520; DK 09753819 T 20090520; EP 09753819 A 20090520; ES 09753819 T 20090520; KR 20107026538 A 20090520; US 99447009 A 20090520