

Title (en)
MULTISTAGE CENTRIFUGAL GRINDER PUMP

Title (de)
MEHRSTUFIGE ZENTRIFUGALPUMPE MIT ZERKLEINERER

Title (fr)
POMPE CENTRIFUGE À PLUSIEURS ÉTAGES À BROYEUR

Publication
EP 3404265 A1 20181121 (EN)

Application
EP 17170972 A 20170515

Priority
EP 17170972 A 20170515

Abstract (en)
A multistage centrifugal grinder pump is proposed, comprising a housing (2) with an pump inlet (3) for a fluid to be conveyed, and a pump outlet (4) for discharging the fluid, further comprising a grinder (5) arranged at the pump inlet (3) for grinding constituents of the fluid, a first stage impeller (6) for rotating about an axial direction (A), a second stage impeller (7) for rotating about the axial direction (A), and a shaft (8) for rotating the first impeller (6), the second impeller (7) and the grinder (5), wherein the first stage impeller (6) is arranged in a first chamber (61) of the housing (2), wherein the second stage impeller (7) is arranged in a second chamber (71) of the housing (2), and wherein the first stage impeller (6) and the second stage impeller (7) are connected to the shaft (8) in a torque-proof manner, wherein a disk-shaped diffuser (9) is arranged between the first stage impeller (6) and the second stage impeller (7) regarding the axial direction (A), the disk-shaped diffuser (9) having a central axis (C) extending in the axial direction (A), a bottom face (91) arranged adjacent to the first stage impeller (6) and a top face (92) arranged adjacent to the second stage impeller (7), wherein the bottom face (91) comprises an inlet opening (96) for receiving the fluid from the first chamber (61), and wherein the top face (92) comprises a plurality of outlet openings (97) for supplying the fluid to the second stage impeller (7), the disk-shaped diffuser (9) further comprising a plurality of internal channels (98) with each internal channel (98) extending from the inlet opening (96) to one of the outlet openings (97).

IPC 8 full level
E03F 5/22 (2006.01); **F04D 1/06** (2006.01); **F04D 7/04** (2006.01); **F04D 13/08** (2006.01); **F04D 29/44** (2006.01)

CPC (source: EP)
F04D 1/06 (2013.01); **F04D 7/045** (2013.01); **F04D 13/08** (2013.01); **F04D 29/448** (2013.01); **F04D 29/2216** (2013.01)

Citation (applicant)
US 7357341 B2 20080415 - GUTWEIN GREGORY J [US], et al

Citation (search report)
• [X] DE 19543916 A1 19960530 - HAENY & CIE AG [CH]
• [A] US 5344285 A 19940906 - O'SULLIVAN MARK E [US], et al

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

Designated extension state (EPC)
BA ME

DOCDB simple family (publication)
EP 3404265 A1 20181121

DOCDB simple family (application)
EP 17170972 A 20170515