

Title (en)

Rotary displacement pump for pumping flowable materials of high viscosity

Title (de)

Drehbare Verdrängerpumpe zum Pumpen von fließfähigen Materialien hoher Viskosität

Title (fr)

Pompe à déplacement rotatif pour pomper des matériaux fluides ayant une haute viscosité

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Application

EP 11179881 A 20110902

Priority

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Abstract (en)

A rotary displacement pump (2) according to the present invention is for pumping flowable, relatively viscous materials and comprises a liner (26, 36); a rotor (28) configured to be driven by a shaft (8); said rotor (28) including a shaft portion (30) and a radially protruding web (32) having a configuration of an undulatory disk type; a scraper gate (38) having an engagement slot of predetermined radial height and predetermined axial width, said engagement slot engaging said protruding web (32) of said rotor (28); said scraper gate (38) being supported by a scraper gate guide (40) so as to be retained in circumferential direction and to allow a reciprocating movement in a substantially axial direction; a pump housing (14) comprising a front end part (52) and a rear end part, said pump housing (14) enclosing said liner (26, 36), said rotor (28), said scraper gate (38) and said scraper gate guide (40), said shaft (8) extending through said rear end part of said pump housing (14); said liner (26, 36) including a first liner element (26) and a second liner element (36), said first and second liner elements (26, 36) abutting to each other laterally along a radially outer abutment portion so as to form a liner channel through which said radially protruding web (32) of said rotor (28) runs and to define an enclosure that encircles a portion of said radially protruding web (32) of said rotor (28); an inlet chamber and an outlet chamber being defined by said liner (26, 36), said scraper gate (38) and said scraper gate guide (40) or by said liner, said pump housing, said scraper gate and said scraper gate guide; said scraper gate (38) together with said scraper gate guide (40) forming a partition between said inlet chamber and said outlet chamber; said inlet and outlet chambers being provided with respective inlet and outlet ports (16, 18); said liner channel extending from said inlet chamber to said outlet chamber; said web (32) of said rotor (28) being rotatable through said inlet chamber, said liner channel, said outlet chamber and said slot of said scraper gate (38); wherein said scraper gate (38) and/or said liner (26, 36) comprises 85 to 95 Vol-% of a Polyethylene basis material of ultra-high molecular weight and 5 to 15 % Vol-% of glass particles having a rounded shape distributed within said Polyethylene basis material, such that the surface of said scraper gate (38) and/or said liner (26, 36) comprising rounded surface portions formed by such glass particles constitutes a hard slide face for the flowable, relatively viscous materials to be pumped.

IPC 8 full level

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Citation (applicant)

EP 1807624 B1 20081112 - MASO PROCESS PUMPEN GMBH [DE]

Citation (search report)

- [YD] EP 1807624 B1 20081112 - MASO PROCESS PUMPEN GMBH [DE]
- [Y] EP 1892418 A2 20080227 - INDUSTRA INDUSTRIANLAGEN MASCH [DE]
- [Y] US 2002159906 A1 20021031 - PHALLEN IVER J [US], et al
- [Y] "MANUAL - TECHNICAL DOCUMENTATION MASO-SINE-PUMP MR 160", ANNOUNCEMENT SUNDYNE, XX, XX, 1 January 2003 (2003-01-01), XP001219572

Cited by

CN108138572A; US11098713B2; US11125228B2; US10830234B2

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