

Title (en)

SYSTEM AND METHOD FOR POSITION CONTROL OF A MECHANICAL PISTON IN A PUMP

Title (de)

SYSTEM UND VERFAHREN ZUR POSITIONSTEUERUNG EINES MECHANISCHEN KOLBENS IN EINER PUMPE

Title (fr)

SYSTEME ET PROCEDE PERMETTANT DE COMMANDER LA POSITION D'UN PISTON MECANIQUE DANS UNE POMPE

Publication

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Application

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- US 2005042127 W 20051121
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- US 84172506 P 20060901

Abstract (en)

[origin: WO2007061957A2] Embodiments of the systems and methods disclosed herein utilize a brushless DC motor (BLDCM) to drive a single-stage or a multi-stage pump in a pumping system for real time, smooth motion, and extremely precise and repeatable position control over fluid movements and dispense amounts, useful in semiconductor manufacturing. The BLDCM may employ a position sensor for real time position feedback to a processor executing a custom field-oriented control scheme. Embodiments of the invention can reduce heat generation without undesirably compromising the precise position control of the dispense pump by increasing and decreasing, via a custom control scheme, the operating frequency of the BLDCM according to the criticality of the underlying function(s). The control scheme can run the BLDCM at very low speeds while maintaining a constant velocity, which enables the pumping system to operate in a wide range of speeds with minimal variation, substantially increasing dispense performance and operation capabilities.

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- US 5312233 A 19940517 - TANNY MARK N [US], et al
- US 2005244276 A1 20051103 - PFISTER JEAN-FRANCOIS [CH], et al

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JP 2009529847 A 20090820; JP 2013150549 A 20130801; JP 5339915 B2 20131113; JP 5674853 B2 20150225; KR 101279747 B1 20130627;
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