

AUTONOMOUS DRUG DELIVERY SYSTEM FOR PHARMACEUTICAL DRUGS

This technology enables the introduction of a therapeutic substance in the body and improves its efficacy and safety by controlling the rate, time and place of release of drugs in the body.

Potential Applications

Medical field and drug industry.

Customer Benefits

- Controlling all processes (passive conveying, mixing, heating) in one device
- Much safer due to control of the quantity of reagents and a heating operation
- Gathers the homogenous mixing process of multiple reagents
- Not require any external power source
- Cost effective

Technology Features & Specifications

The purpose of creating this automated device so that it will get reagent inputs and passively mix them together. This novel technology has features of passive reagent mixing with hydrodynamic cavitation, allowing fluid flow due surface tension gradient inside the device due to non-homogenous distribution of nanostructures, effective heating due to enhanced surface area with pin fins, and extracting the drug cocktail from the system. After a heating process, the system transfers ingredients into another chamber in order to adjust and reduce the desired properties of mixture.



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Market Trends and Opportunities

The Micro Electro Mechanical System (MEMS) industry has an exponential growth in today's market. Nowadays, MEMS industry has billions of dollars revenue in the market and is now targeting life sciences and applications. New in vitro diagnostic systems, new therapy strategies, genetic diseases treatment, targeted and intelligent drug delivery, artificial pancreas, drug discovery processes serve for health improvement promised to future generations, which can be accomplished by MEMS technologies. To prevent harmful side-effects and to increase drug's efficiency, MEMS technology could be used to develop autonomous, effective, and compact drug delivery systems. Drug Delivery Technology Market will be worth of \$224.2 Billion by 2017.

Concept of the drug delivery system

