



Contamination Free Dispensing

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BACKGROUND and BASICS

Dispensing devices are widespread used in the technical and public sector for many different fluids such as lubricants or liquid soaps. Common requirements are:

- high accuracy of the dispensed amount, independent of the fluid's viscosity
- low energy consumption
- operation without contamination of the fluid

Medium separation becomes more and more important e.g. in medical and disposable applications. Therefore a new concept for medium separated dispensing was developed.

The competences of HSG-IMAT in the field of pumping and dispensing fluids are:

- modeling of the mechanical, fluidic & electrical system
- design, fabrication and test of prototypes



CONCEPT and SOLUTION

The patent pending dispensing technology uses a two step cycle:

1st step (load stroke):

- A magnetic element (1) is attracted by a solenoid (3) and thereby compresses a spring (2). A check valve (4) forces the fluid to flow around the ferromagnetic element.

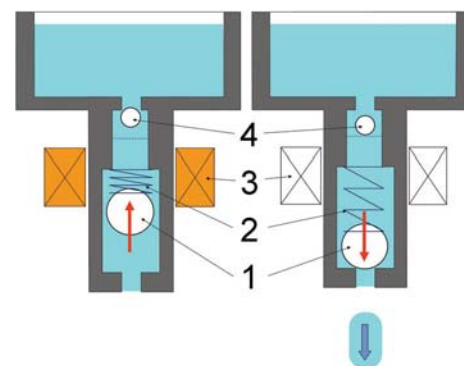
2nd step (pump stroke):

- The solenoid is switched off and the spring expands. It pushes back the magnetic element, and dispenses the fluid.

The dispensing technology meets the above mentioned requirements and also shows further advantages:

- flexible adjustment via activation of the solenoid
- pump chamber as low-cost disposable
- sealed outlet, when the system is deactivated

load stroke  pump stroke



STATUS and OUTLOOK

An electric soap dispenser was designed and set up. The device was then tested extensively to verify the advantages of the concept. Simulation models for the electromagnetic and fluidic behavior of the system have been developed.

As a result of the research activities at HSG-IMAT, the required know-how for further R&D and industrialization steps exists. In particular, we intend to open new areas of application for the technology, such as medical service or food & beverage.

You plan to enter new markets?

You want to use our technology for dispensing your fluids?

Please do not hesitate to contact us.



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