

# **Frying Oil Re-circulation System: New Construction of a Fryer to Improve Heat Transfer and Minimize Fat Consumption during Deep Frying**

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## **Abstract:**

### **Principle of the Circulation Deep-Fryer:**

In the new system the deep-frying fat or oil is heated by means of forced convection (pump circulation) in an external heating device. The heating surface of this newly developed continuous-flow heater is significantly bigger than in conventional deep-fryers so that the difference of temperature between the medium and the heating device can be kept low as well as the total quantity of oil can be kept very small. Since the fried food takes fat, a part of the fat lacks after each frying process. The fat volume is kept constant by a regulated supply of fresh fat into the circulation deep-fryer which operates effective refreshment. The operator can deep-fry further on without any limit ever. The accumulation of toxins (such as Acrylamide) is kept on a very low level.

### **Advantages of the Circulation Deep Fryer:**

- First-time considerable reliability of the frying process.
- Significant reduction of costs.
- Optimised cooking and heating times.
- Automatic termination of the frying process (“basket-lifter-effect”).
- Permanent filtering.
- Constant quality of oil and fried food.
- No disposal of fat/oil, environmentally compatible.
- Optimum reduction of oil consumption.
- Very low amounts of Acrylamide.