



👑 Projects &  
Development

**DECONWA:**

Intelligently controlled thermal process in an apple washing line to improve the shelf life of Fresh-cut products

# DECONWA:

## Intelligently controlled thermal process in an apple washing line to improve the shelf life of Fresh-cut products

A crucial quality criterion for Fresh-cut products is hygiene, in order to guarantee shelf life and consumers' safety. One of the main elements in fruit salads are apples. They are washed and cubed, while remaining unpeeled. Thus, removing the adherent micro-organisms from the skin before cutting is a basic requirement.

### The aim of the project is to:

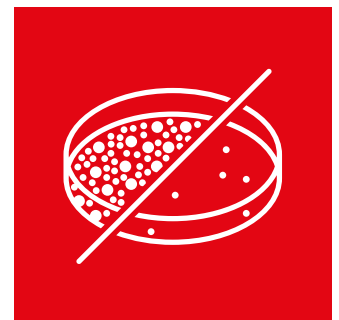
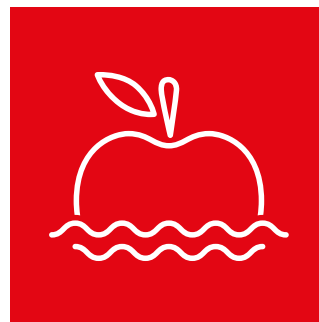
Hygienize apples for Fresh-cut fruit salads, in order to reduce the food's spoiling rate, improve the shelf life of Fresh-cut products, and to increase consumers' safety.

Therefore an innovative washing process has been developed:

- The system hygienizes apples in a gentle way and without using any additives or chemicals.
- It can be integrated into an existing line easily and flexibly and can be transferred to similar products.
- By using temperature guided and controlled processes (around 50 °C) the bacterial load is reduced and keeps a low level sustainably.
- Due to the insulation of the new system it is optimized for the Fresh-cut industry, because it can be implemented in cold rooms.

### KRONEN DECONWA washing machine:

A completely new kind of washing machine has been designed by KRONEN. The dwell time for apples is controlled through the process and the re-use of warm water is assured. Hygienic design and optimum cleanability are guaranteed, as isolation shields, plates and wheel are removable easily.



### Project partners:



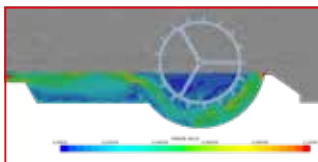
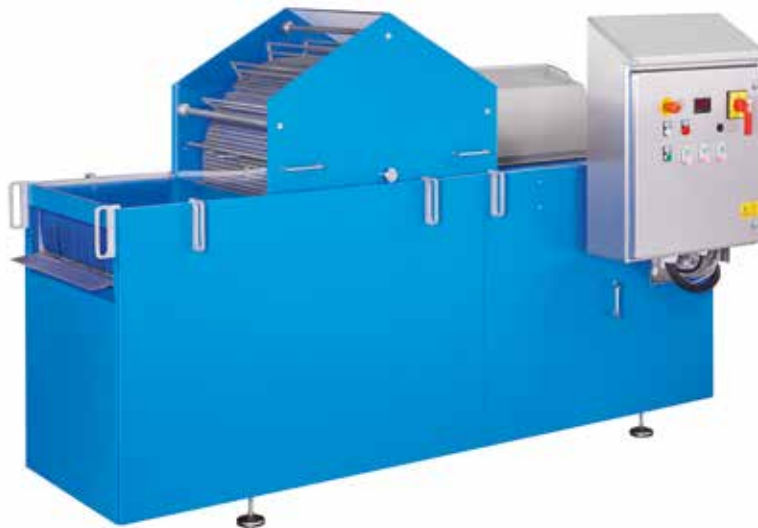


Fig. 1: Water flow simulation to control the dwell time and also to guarantee a gentle apple transport and transfer. It allows avoiding dead ends, bottle-necks and backflows.

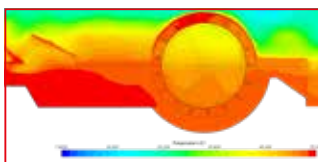


Fig. 2: Water heat simulation to guarantee the right temperature, to estimate the energy consumption and to identify the isolation needs.

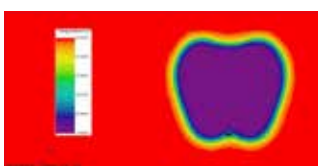


Fig. 3: Apple heat simulation to estimate the energy consumption and the energy transfer into the transformation area.

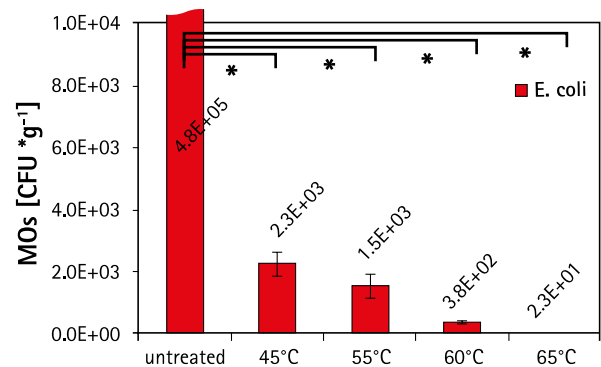


Figure above: Hot water treatment for 1 min at indicated temperatures of E. coli inoculated 'Braeburn' apples reach an around 2–3 log steps (100–1000-fold) reduction of microbial contamination (...).

Source: „Control of apple surface microflora for fresh-cut produce by post-harvest hot-water treatment“ by Tina Kabeilitz and Karin Hassenberg, Leibniz-Institute for Agricultural Engineering and Bioeconomy, Potsdam/Germany



#### Project details:

Time to completion: May 2016–November 2018  
 More: [kronen.eu/projects-development](http://kronen.eu/projects-development)  
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