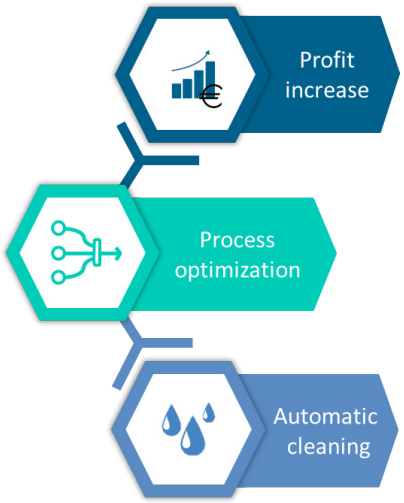
KEN HYGIENE SYSTEMS®




FOOD SAFETY & HYGIENE

# Cleaning out of place (COP)

**It is not always possible to clean process equipment using CIP (Clean in place). To ensure a safe cleaning the use of COP is necessary, this utilizes an automated process which is much safer than manual cleaning.**

Cleaning out of place (COP) requires a partial or complete dismantling of the process equipment, after which it is placed in some kind of washing station.

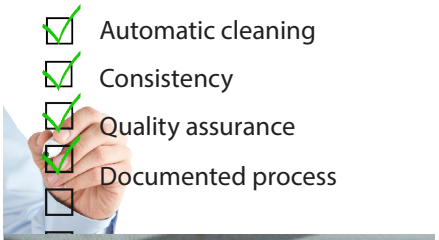
Hereby, this is partly an automated process, as the process equipment are dismantled manually, however, the wash takes place in an automated washing solution, thus contributing to a uniform washing process.

Thereby, COP requires minimal manual work, which reduces the risk of human errors.

However, it is necessary to be aware of certain parameters during the washing process, namely temperature, detergent, mechanical action and time, as these are of great importance for the efficiency of the washing process.

It is therefore essential that;

- The *temperature* is adjusted according to which temperature level the cleaning effect has the best effect. In addition, it is important to assess which temperatures are best suited to the type of residue (e.g. proteins, fat etc.) left on the process equipment.
  - o The temperature of a possible pre-rinse as well as the temperature of the wash itself must be matched according to the previous conditions metioned.
- The *detergent* is selected according to the degree of contamination, and type process equipment.
- The *mechanical action* is optimized according to the specific process equipment, so that the mechanical effect is sufficient to remove the built-up biofilm on and in the equipment.
- The programmed *time* for the process must be sufficient to obtain a complete utilization of the other parameters.




Rack with critical process equipment being loaded into Equipment Washer Disinfector for COP

Hence, it is important to be aware that all the parameters influence each other. For example, if a parameter is reduced, then is must be combined with an increase of one or several of the additional parameters to ensure efficient cleaning.

It is also of great importance for the washing efficiency how the process equipment is placed – especially in relation to the mechanical treatment of the soiled/dirty surface. For this reason it makes good sense to consider how the equipment is placed in the washing station; should it lie, stand, fix or similar.

Is must be possible for the flow of wash water and rinse water to reach all the surfaces with a satisfactory mechanical effect.

The mechanical effect can vary widely, and the effect will also depend on the chosen washing solution.

For instance, one can choose a solution with a simple circulation of cleaning fluid without a significant flow, or possibly an excessively high flow, which in both cases will cause insufficient cleaning.

In some cases, the cleaning fluid will not be sufficient, for example, to wash the interior sides and corners of the washing station, thus leaving room for microorganisms to establish, and hence transfer to the process equipment or the next production batch.

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**Wash with or without disinfection**
There is no legislative requirement for a disinfection – " a disinfection is conducted if necessary". However, there must be a risk assessment of the cleaning effect of the equipment.

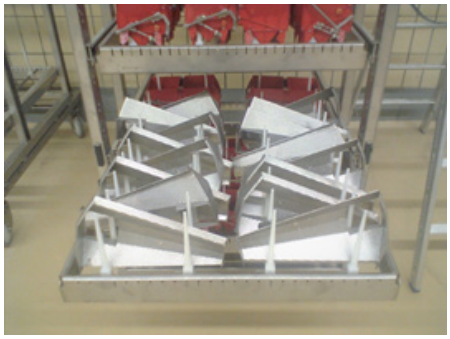
Thus, it has to be assessed whether the cleaning has been sufficiently effective, or if there are still too high a number of microorganisms on the surface, so that a disinfection must be carried out before starting the next production.

If the customer wants a disinfection of the process equipment, there are several ways in which this can be done;

- A *chemical disinfection* with detergent, which requires a final rinse to remove the applied detergent. This final rinse is conducted with clean water to preserve the disinfection.
- *"Scalding"* with a final rinse of typically 80°C. This is a short term exposure, which helps to heat the equipment to contribute to an easier drying afterwards.
- A *thermal disinfection* where the final rinse is done by re-circulating the rinse water at higher temperatures (85-92°C). This is a prolonged process, but ensures a more efficient disinfection, since the heat spreads more in cavities than "scalding".

A **drying system** is also an important part of a washing- and disinfection process, because moisture can cause the settlement of biofilm, where microorganisms can grow and also where allergens can be "captured" in the biofilm.

**KEN's safe solution**
By applying an Equipment Washer Disinfector from KEN HYGIENE SYSTEMS, it is possible to dismantle the process equipment directly from the production line, which is then placed on a specially designed rack, and then driven into the Equipment Washer Disinfector for washing and disinfection.



Critical process equipment placed on rack

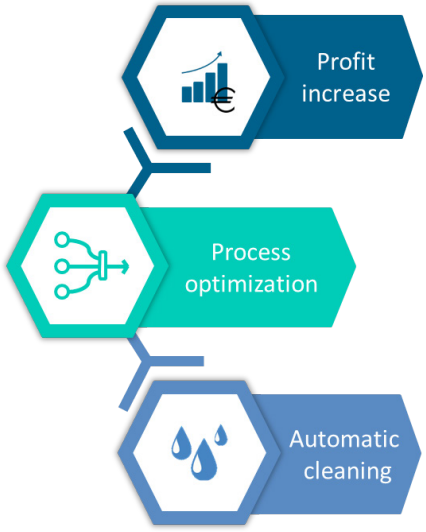
The racks are designed according to the customer's needs, which ensure an optimal and efficient coverage with the cleaning fluid with a sufficient flow. This contributes to a complete coverage of the surfaces, so that the optimal mechanical washing effect is reached on the specific process equipment. Thus, ensures a more efficient washing process.

At the same time, the racks are washed together with the process equipment, which eliminates the risk of cross contamination between the clean process equipment and the contaminated rack.

Additionally, KEN's Equipment Washer Disinfectors offer customers a thermal disinfection with temperatures above 90°C.

We can design different washing programmes for the KEN Equipment Washer Disinfectors, for example containing pre-rinse, wash, final rinse and disinfection. All the steps can be defined specifically in relation to the customers' requirements with regard to temperatures, detergent etc.

The wash and disinfection can be followed by a drying phase, which leaves the process equipment dry and safe.




**Sustainable solution**
What is the minimum amount of water, detergent and energy needed to ensure optimum cleanness?

This is a question that we constantly ask ourselves. At KEN HYGIENE SYSTEMS, we constantly optimize our washing processes in order to reduce resource consumption, which also contribute to a reduction of the environmental impact.

We work hard to keep the consumption of water and detergent at the lowest level, while providing the highest possible hygiene level of the critical process equipment.


Contact a KEN partner

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