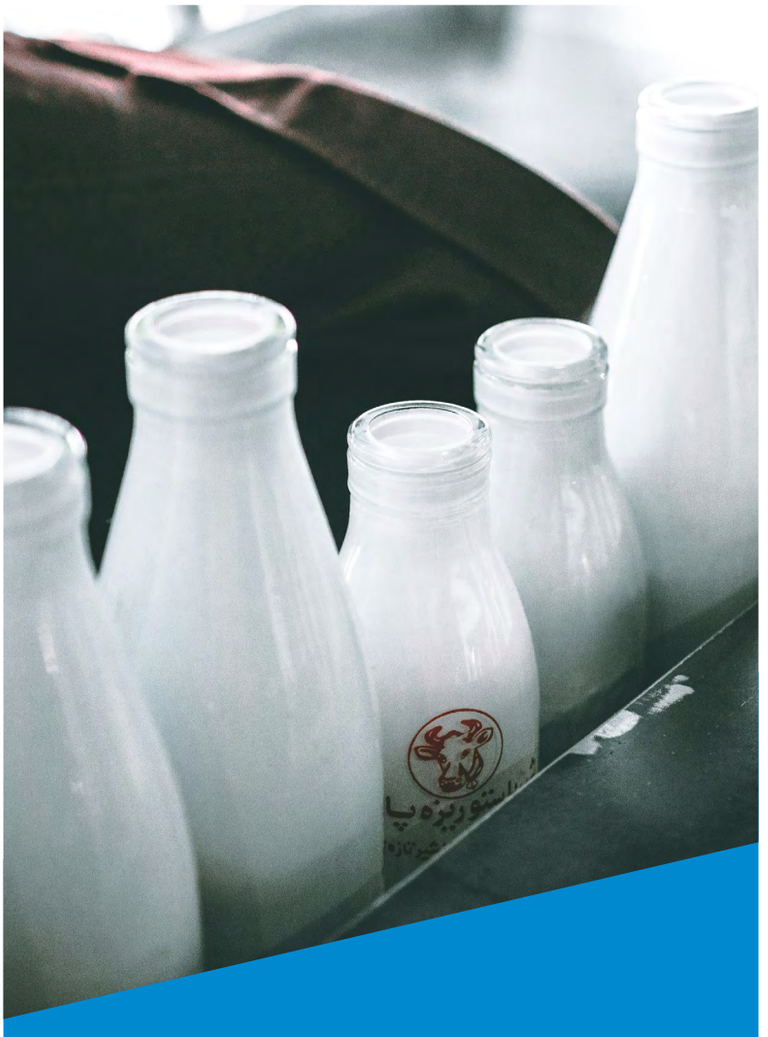
Lactose-free milk: Cleaning in place a milk tank

How a customer's request inspired the innovation of our UKK tank washing nozzle



INDUSTRY
Food and beverage

APPLICATION
CIP Tank Cleaning

PROBLEM
Study of a CIP cleaning system for a process tank for lactose-free milk production

SOLUTION
Cleaning system composed of 17 UKK A

SCENARIO FOR THE SECTOR

The production of lactose-free milk

Lactose-free milk allows people who are lactose intolerant to enjoy the benefits of this food and its derivatives.

The simplest way to **produce lactose-free milk is by adding the enzyme lactase, which breaks down lactose into glucose and galactose**. This process gives the milk a sweeter taste, as both of these sugars are sweeter than lactose.

In the "aseptic" process for producing lactose-free milk, the milk is first sterilized using the UHT procedure. Then, just before packaging, a sterile lactase preparation is added. The hydrolysis of lactose takes place in the final milk container. Since UHT milk is often kept in quarantine for three days at room temperature, there is ample time for complete hydrolysis before the milk is shipped to retailers.

In this process, processing tanks are used to ensure that the product is stored under aseptic conditions.

THE PROBLEM OF OUR CLIENT

The client who contacted us is an engineering firm that specializes in designing food processing lines.

THE GOAL WAS TO **DESIGN A CIP (CLEAN-IN-PLACE) SYSTEM FOR A TANK**, APPROXIMATELY 5 METERS TALL, USED IN THE PRODUCTION OF LACTOSE-FREE MILK.

One of the requirements was that the CIP system be activated by the cleaning solution itself.

CAPACITY OF THE TANK TO BE CLEANED	7m³
STORAGE TEMPERATURE	FROM 20 TO 35 °C
CIP TEMPERATURE	UP TO 85 °C
WASHING TEMPERATURE	FROM 10 TO 15 °C
LIQUID FLOW RATE AT INLET AND OUTLET	7m³
AVAILABLE FLOW RATE FOR THE CIP SYSTEM	20m³

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PNR ITALIA SOLUTION

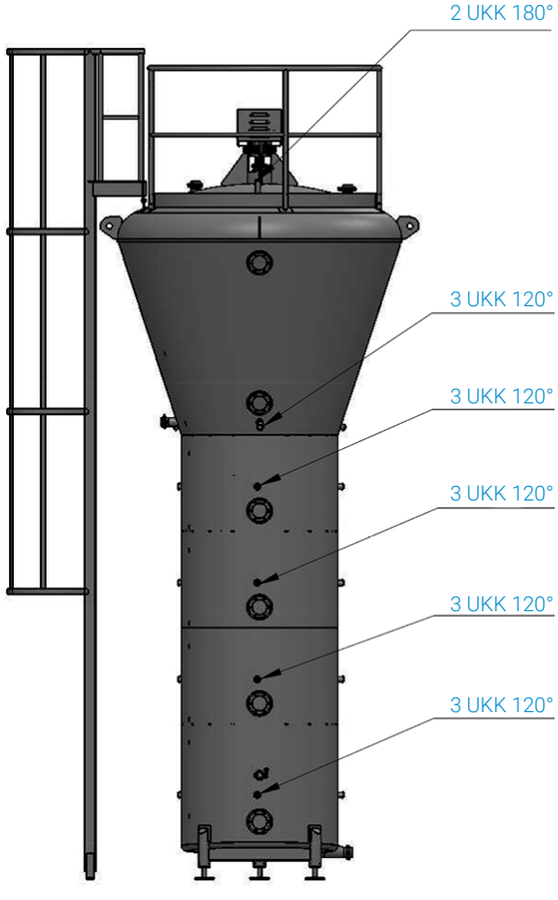
Our technical and sales office has developed a **coverage study for the tank** to ensure that the cleaning action of the spray heads reaches the internal surfaces of the tank evenly.

The considerable height of the container, approximately 5 meters, necessitated the development of a solution that involved i**nstalling spray heads on the walls rather than at the top**, to ensure effective cleaning action across the entire internal surface.

The proposed solution involves using **17 UKK A spray heads mounted on the walls of the tank**.

UKK is a retractable spray head designed for cleaning containers, tanks, and pipelines.

THE **UKK A** VARIANT PREVENTS WATER INFILTRATION INSIDE IT DUE TO A NEW SEALING MECHANISM.



PROCESS TANK
LATERAL VIEW

ADVANTAGES FOR OUR CLIENT

Thanks to the proposed solution, **the client successfully installed the CIP system**.

This specific case study, along with the challenges that arose from it, **allowed us at PNR Italia to further develop the UKK A version of our UKK spray head.**

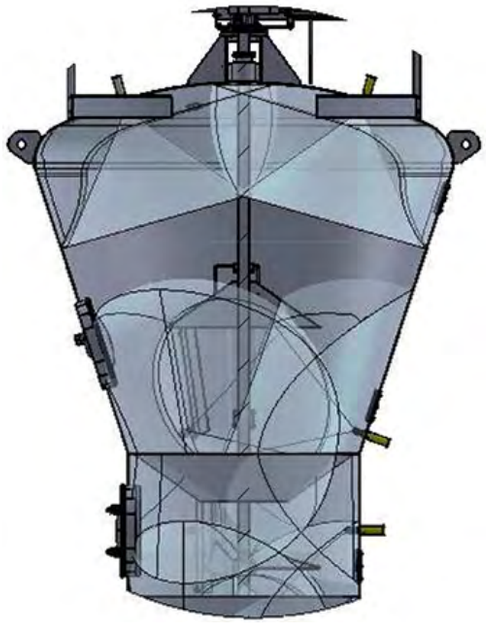
FOCUS ON THE PRODUCT



UKK
TANK CLEANING NOZZLE

The operation of the cleaning nozzle is simple yet highly effective: with adequate liquid supply pressure, the nozzle extends, and the cleaning action begins.

Due to its compact size and special design, the UKK can be installed flush with the wall. It is the ideal product for cleaning applications in the chemical and pharmaceutical industries, and its food contact certification also allows it to be used in the food and beverage sector.



PROCESS TANK
SECTION WITH COVERAGE STUDY

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