

# CIP

**CLEANING IN PLACE  
AUTOMATIC SYSTEM**

**FOR DAIRY – DRINKS  
BEER – DRINKING WATER**

## *ALPES*

INDUSTRIES SERVICES INTERNATIONAL LTD





## QUALITY CHANGES THE WORLD

## BRIEF INTRODUCTION

« Efficiency, cooperation, win-win, sharing » are the core values that we defend.

« Unity, pragmatism, criterion, innovation » are the main ideas that we share.

« Faith foremost, resources integration, shareholders return, and hometown welfare » are the aim that we follow.

« Being pioneering and enterprising, industry-leading, seeking for excellence, making achievements » are the vision that we process.

ALPES INDUSTRIES SERVICES INTERNATIONAL is a supplier of machines, equipment and services for dairy industry, juice and mineral water production including adequate water treatment, bottle design and blowing as well as filling in PET bottles.

in order to propose the most adequate and safest water treatment. Our customer can create his own bottle which we will make real with our designers by using our bottle blowing unit equipped with double cavity molds.

We are specialized in complete « turn-key » installations. This know-how starts from plant study and conception, often through renovation of old building and installation, all the way to new plant installation and start-up of the production with training of local staff in the plant.

In addition to turnkey plants, ALPES INDUSTRIES SERVICES INTERNATIONAL is able to supply equipment for expansion of an existing plant or to renovate an old plant. Even in new installations, we start usually by renovating the old building and installation; this is one of our main forces.

We prepare for our customers all plant and machine layouts, even for existing plants, by using the most up-to-date softwares (Autocad). We are well-referenced in carrying out small medium and big size dairy plants: milk reception centers, full lines for pasteurized or UHT milk, yoghurt, cream, cheese and butter. We carry out also productions lines for fruit juice and drinks: transformation of the fresh fruits, with concentrates or aromas.

We are present in the whole world, in more than 20 countries to start from Vietnam to Niger or from Russia to Rwanda. 100 % of our activity is based on exports and in few years we have successfully carried out many turnkey projects or yet renovated existing plants.

Also ALPES INDUSTRIES SERVICES INTERNATIONAL carries out installations permitting sterilization of the water and bottling of mineral water. We can proceed with water analysis on our customer's water samples

By using this experience, ALPES INDUSTRIES SERVICES INTERNATIONAL can offer its customers a capacity to adjust their plants in order to face production fluctuation and remain independent. In 4 to 6 months' time, ALPES INDUSTRIES SERVICES INTERNATIONAL can supply to you a new, complete, modern and liable plant you can be proud of. We engage ourselves to a long-term relationship with our customers who we consider as our partners in development and improvement of production means.





# CONTENTS

HOW CIP IS WORKING ?	P4
WHAT CIP BRINGS YOU ?	P5
ALPES CIP	P8
ALPES CIP DESIGN	P9
ALPES CIP INSTALLATIONS IN THE WORLD	P10
CONTACT US	P11



# HOW CIP IS WORKING ?

## Cleaning in place

A Cleaning In Place (CIP) system is designed to clean a liquid processing plant without the need to strip it down into component parts, and manually clean with scourers etc.

The benefit of a CIP system is that once set-up, it will clean the plant equipment, time and again, while the operators get on with other duties, i.e. it is supposed to be labor saving.

Talking about cleaning results, the following terms are used to define the degree of cleanliness:

- **Physical cleanliness** – removal of all visible dirt from the surface;
- **Chemical cleanliness** – removal not only of all visible dirt but also of microscopic residues which can be detected by taste or smell but are not visible to the naked eye;
- **Bacteriological cleanliness** – attained by disinfection;
- **Sterile cleanliness** – destruction of all micro-organisms;

It is important to note that equipment can be bacteriologically clean without necessarily being physically or chemically clean. However, it is easier to achieve bacteriological cleanliness as a matter of routine if the surfaces in question are first rendered at least physically clean.



## Involved Department

### Quality department :

Cleaning and sanitization of process plant are one of the most critical aspects of food processing to ensure the health and safety of consumers. Proper cleaning is essential for the production of high quality food products, especially those with extended shelf life.

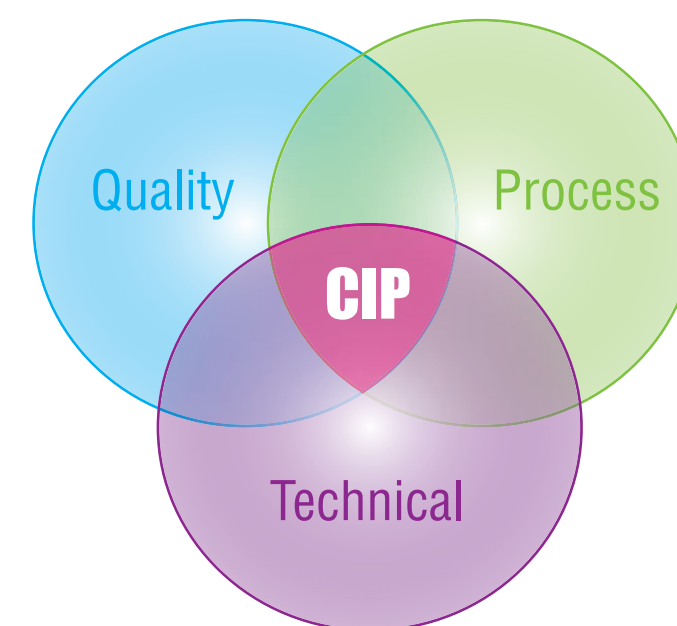
The quality department is in charge of entering the required settings inside the CIP and monitoring the cleaning results.

### Maintenance or Technical department :

CIP is considering such as utility equipment. Steam, water, compressed air and electricity are necessary for CIP to work. The technical department is in charge of providing utilities for CIP to work and of maintaining the CIP system in good shape.

### Process department :

Operators are the persons running the CIP most of the time. They choose equipment they want to clean and the type of cleaning. The process department is running the CIP.





## WHAT CIP BRINGS YOU ?

### Saving money and time

#### Recovered Rinse Water Tank

After a detergent cycle, the fresh water used as post-rinse and the terminal sanitizers are collected and re-used as pre-rinse for the next CIP cycle. This saves both water consumption and effluent treatment costs.

#### Recovering cleaning solution

A tank is used to store a batch of diluted detergent, which is recirculated around the plant and returned back to the detergent tank again. Use of a detergent tank saves costs of chemicals.

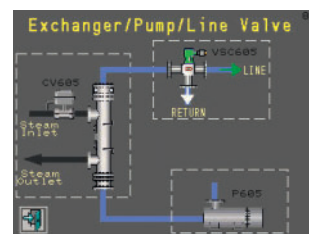
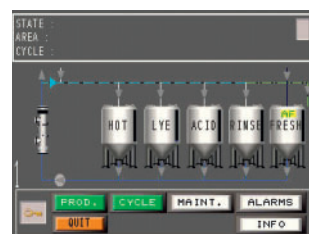
#### Reducing cleaning time and working operator time

- Using forward pump at 25.000lts/h;
- Cleaning 4 pieces of equipment at a time;
- Fully automatic, it does not need to be handled by operators.ion are first rendered at least physically clean.

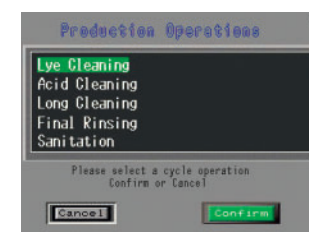


### Safe and easy to run

Our program display is intuitive, friendly designed and simple to run.



Our CIP system contains password that allow trained people to go in advanced parameter. For operators that are only running CIP in auto mode, the system is really simple:



Then they can monitor the status of cleaning on the screen

## ALPES CIP

### A sustainable solution to clean all your process equipment

ALPES CIP systems are suitable for dairy, water, juice, drinking water processes

With ALPES CIP systems you can clean all your equipments : Tanks, pipes, exchangers, valves, pumps,...

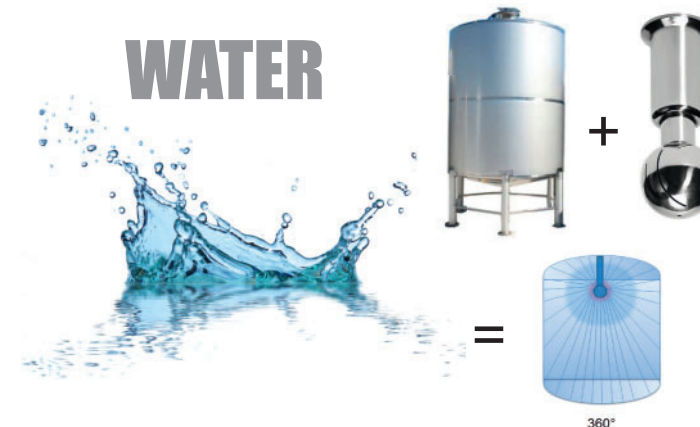
### JUICE



### DAIRY



### WATER



### DRINK



### A fully automated system

- Temperature and concentration of cleaning solution is automatically monitored by PLC ;
- Filling of water and preparation of cleaning solution is automatically controlled by CIP ;
- Fully automatic cleaning cycles, no intervention required during cleaning





# ALPES CIP

## A simple and cost effective design



# ALPES CIP DESIGN

## Different designs to meet your needs

One line can clean up to 16 different areas (tanks, pasteurizers, pipes...). These areas are defined specifically for each factory requirements.

Number of Areas per type of CIP :

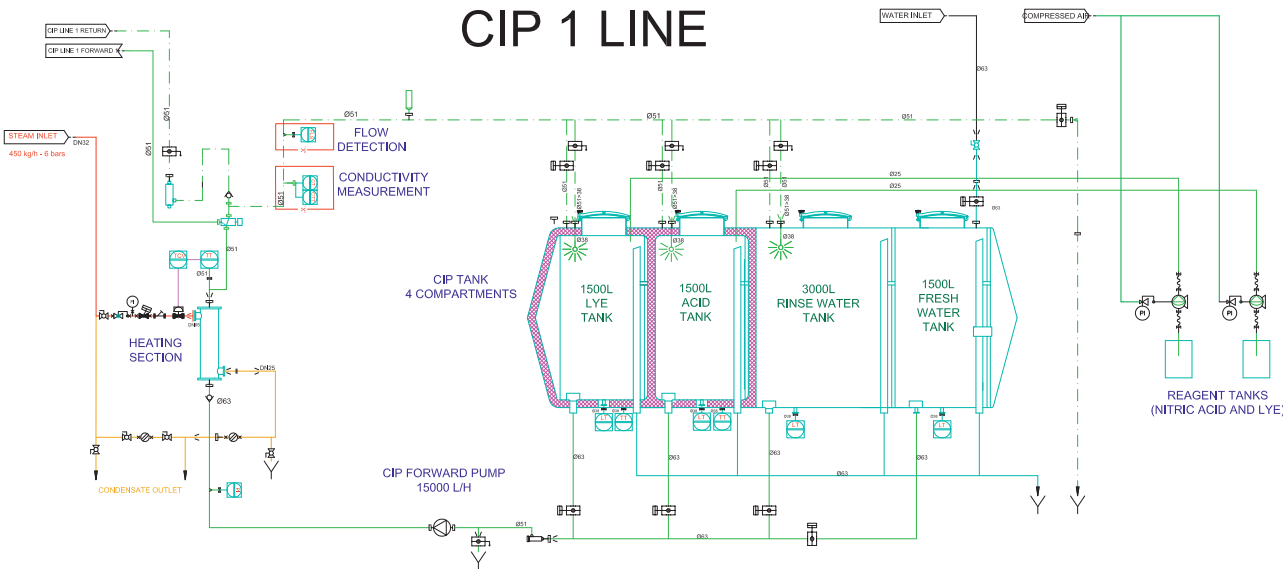
CIP 1 Line	16 AREAS to clean	CIP 3 Lines	48 AREAS to clean
CIP 2 Lines	32 AREAS to clean	CIP 4 Lines	64 AREAS to clean

## Each CIP includes:

- PLC component, electrical panel, pneumatic panel, screen panels
- Tanks accessories: temperature sensor, level sensors, CIP spray ball
- Pneumatic valve for inlet outlet of tank
- Forward pump controlled by inverter
- Heating block with heat exchanger, safety valve, steam regulation valve
- Sending valve and filters
- Conductivity sensor and flow switch
- A neutralization tank can be added to sewer line in order to stabilize solution before draining
- Dosing system of mother solution

Each CIP is designed to match factory requirements and is adapted to factory capacity.

ITEMS	DESIGN
NUMBER OF LINES	1 to 4 lines
NUMBER OF TANKS	4 (5 tanks with hot water option)
HOT WATER TANK FOR SANITATION	Optional
TYPE OF TANK	1 partitioned tank or 4-5 separated tanks
AGITATORS ON TANKS	Optional
CAPACITY OF TANK	1500 lts - 10000 lts
CAPACITY OF FORWARD PUMPS	15000 - 25000 lts/h, 3-4 bar



Type of cleaning	Purpose	Pre-rinsing with recovered water (55°C, 5min)	Caustic soda (85°C, 2%, 20 min)	Intermediate rinsing with fresh water (55°C, 10 min)	Nitric acid (75°C, 1.5%, 20min)	Final rinsing with fresh water (25°C, 10 min)	hot water (90°C, 10min)
Long cleaning	Full cleaning	YES	YES	YES	YES	YES	-
Lye cleaning	Remove organic scale (fats, proteins,...)	YES	YES	NO	NO	YES	-
Acid cleaning	Remove inorganic scale (millstone, calcium deposits,...)	YES	NO	NO	YES	YES	-
Final rinsing only	Rinsing	NO	NO	NO	NO	YES	-
Sanitation	After cleaning	-	-	-	-optionnal	YES	

## ALPES CIP INSTALLATIONS IN THE WORLD



Area	Country	CIP installations
MAGHREB	ALGERIA	1 CIP 1 line 1 CIP 2 lines
	LYBIA	1 CIP 2 lines
EAST AFRICA	KENYA	1 CIP 2 lines 1 CIP 3 lines 2 CIP 4 lines 1 CIP 4 lines 1 CIP 1 line
	RWANDA	1 CIP 1 LINE
	UGANDA	1 CIP 2 lines 1 CIP 4 lines 2 CIP 1 line 1 CIP 1 line
	BURUNDI	1 CIP 1 line
WEST AFRICA	NIGER	1 CIP 1 line 1 CIP 1 line 1 CIP 2 lines
CENTRAL ASIA	KYRGYZ REPUBLIC	1 CIP 1 line 1 CIP 1 line 1 CIP 1 line 1 CIP 1 line
	UZBEKISTAN	1 CIP 1 line

## ALPES KEEPS IMPROVING CIP SYSTEM FOR YOU

Not only Alpes provides you tailor-made solutions for CIP system (hot water tank, partitioned or separated tank, agitator Y/N,...), but also keeps innovating.

In addition with the basis solution, Alpes is developing a recording system to offer the possibility to survey the main parameters in a logbook :

- Reporting and trending of each CIP cycle (each CIP cycle is given a unique cleaning number and can be compared to a validated CIP sequence)
- Archiving of cleaning data and sensor readings
- Displays uncleaned equipment with last cleaning date and time
- Backup alarms and reporting of CIP irregularities
- ...

Alpes proposes forward flow detection for both:

- ensuring the cleaning of the area;
- avoiding mechanical damages in case of human failure (equipment manual valve kept closed)

We can study any of your specific requests, do not hesitate to contact our engineering unit.



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