

CLEANING IN PLACE

FIT CIP

*DECENTRALIZED CIP
FOR FOOD & HUMAN SAFETY*



PROCESS PLANT CLEANING



There are 3 main factors that affect to process plant cleaning.

Plant Design

- Materials and surface finish
- Equipment design
- Equipment installation
- Geometry and presence of drain

Process Design

- Quantity and type of soil
- Age / Moisture of soil
- Composition of soil

Cleaning Process

- Temperature
- Flow rate
- Detergent type & Concentration
- Cleaning time
- Water hardness

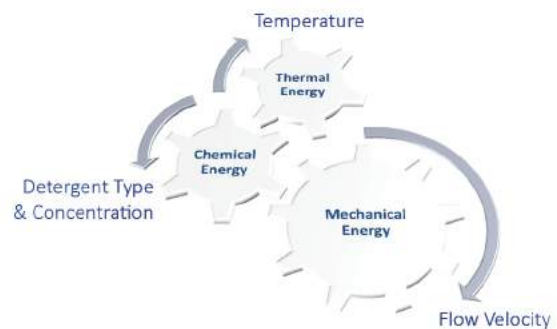
CIP FOR IMPROVEMENT OF HYGIENE STANDARDS

The CIP systems are becoming increasingly common in foods and beverage, personal care and home care products, as the improvements possible in cleaning and hygiene standards become apparent.

Where hygiene is a critical control point (CCP) for a process, CIP provides better control and monitoring than manual cleaning, and hence improved quality assurance. A further advantage of CIP systems is their cost effectiveness compared to manual cleaning. In order to benefit from these advantages, it is necessary to have an understanding of the principles of CIP cleaning and the systems involved.

KEY POINTS

The cleaning process aims to convert the soil deposits into a dissolved or suspended state by the application of energy, which is available in thermal, mechanical and chemical forms. In the case of CIP, the energy forms are;



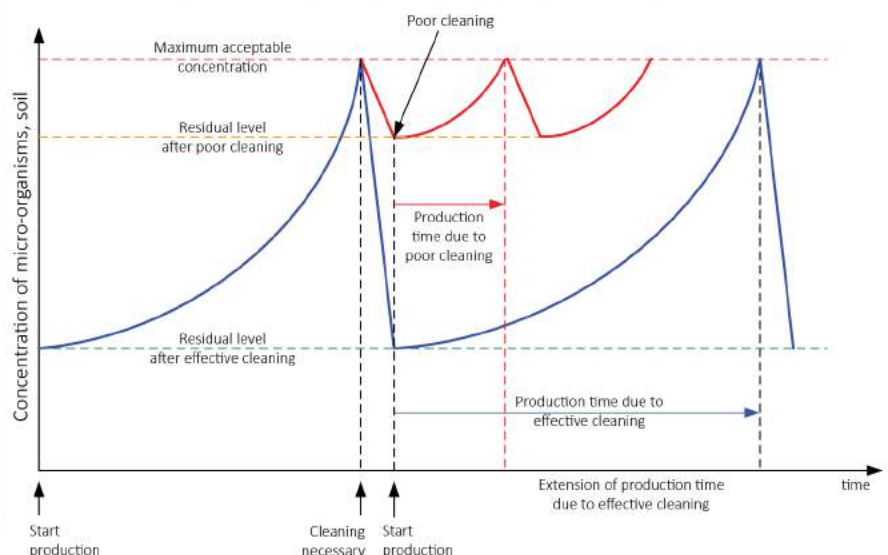
CLEANING IN PLACE PRINCIPLES

Cleaning in place (CIP) refers to all the mechanical and chemical systems necessary to prepare equipment for hygienic food processing that are carried out without dismantling the system.

It is therefore essential that consideration of cleaning should be integrated into the mechanical and process design at an early stage rather than a final process to be incorporated into an already fully specified plant.

If equipment is well cleaned, it is relatively easy to free it from relevant organisms. There are several options, the choice depending on the microbiological requirements, construction materials, and plant design.

INFLUENCE OF CLEANING EFFICIENCY ON AVAILABLE PRODUCTION TIME





AUTOMATIC CLEANING IN PLACE – FIT CIP FOR FOOD & HUMAN SAFETY

The FIT CIP is Decentralized CIP with modular designed that offers the premium performance, cost effective and flexibility to create your own cleaning recipe to meet the specific production needs.

The FIT CIP operate on the principle that the various stages of the cleaning program are carried out with a carefully measured minimum volume of liquid – just enough to fill the circuit to be cleaned. The circulating small batches of cleaning solutions have many advantages. Water and steam consumption, both momentary and total, can be greatly reduced. A high performance CIP supply & circulation pump is used to force the CIP liquids through the circuit at an optimum flow rate.

Cleaning must also be carried out safely, because very strong chemicals are involved that can be harmful to people, equipment, and the environment. It should be carried out with the least impact on the environment, by using minimal amounts of water and detergents. Therefore, the FIT CIP is designed to monitor and control all key parameters of cleaning process. The key parameters include CIP liquid flow rate, temperature, concentration of detergent, and cleaning time needs to be contact with process equipment in order to clean it. The implementation of FIT CIP cleaning through advanced automation system will improve cleaning results, reduce downtime, and secure food & human safety.

APPLICATION

The FIT CIP is Automatic Decentralized CIP system with fully adjustable of cleaning parameters to meet the specific requirement of cleaning object. It is suitable for cleaning of process equipment, tank and sanitary pipe in food application.

The capacity alternatives are;

3,000 – 12,000 l/h for cleaning \varnothing 25 mm to \varnothing 51 mm sanitary pipes.

12,000 – 45,000 l/h for cleaning \varnothing 51 mm to \varnothing 101 mm sanitary pipes.

For cleaning of tank, the capacity of CIP unit is related to the requirement and specification of tank cleaning head.

TECHNICAL DATA

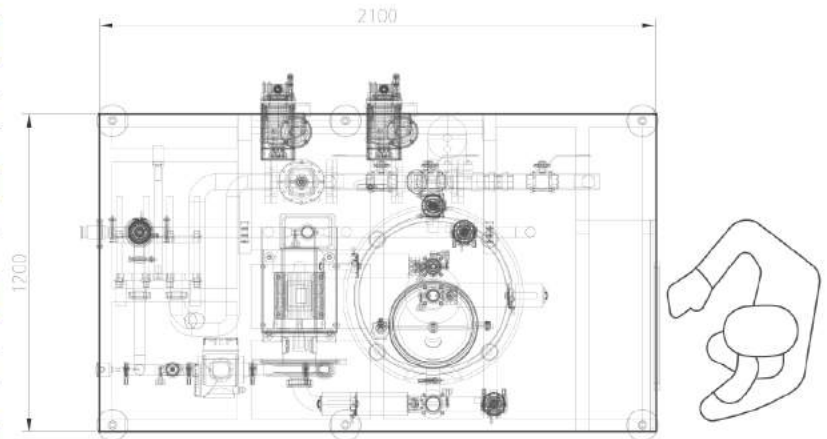
Capacity	
3,000 – 12,000 l/h	Outlet pressure 4 bar (max)
12,000 – 45,000 l/h	Outlet pressure 4 bar (max)

Electric power	
4-15 kW depending on capacity	380 V, 50 Hz

Required process water supply	
Capacity 3,000 – 12,000 l/h	Water supply 12,000 l/h at 3 bar
Capacity 12,000 – 45,000 l/h	Water supply 45,000 l/h at 3 bar

Required low pressure steam supply	
12,000 l/h	Max 550 kg/h, at 3 bar
45,000 l/h	Max 1,800 kg/h at 3 bar

Compressed air	
160 NI/h at 6 bar	



DIMENSIONS

The FIT CIP is compact, with frame mounted.

Capacity 12,000 l/h	2,100 W x 1,200 D x 2,200 H
Capacity 45,000 l/h	3,500 W x 2,000 D x 2,500 H

Remark: Free space required for service and maintenance.

THE FIT CIP COMPONENTS

Main Components	Manufacturer
Hygienic Centrifugal pump with frequency-controlled	Evoguard / Krones
Hygienic Diverting Valves with Actuator and Control Head	Evoguard / Krones
Hygienic Butterfly Valves with Actuator and Control Head	Evoguard / Krones
Hygienic Butterfly Valves with positioner Samson 4-20 mA	Evoguard / Krones
Flow sensor / transmitter	Endress & Hauser
Temperature sensors / transmitter	Endress & Hauser
Conductivity sensor / transmitter	Endress & Hauser
Flow switch	Endress & Hauser
Level sensor / transmitter	Endress & Hauser
Level switch	Endress & Hauser
Chemical dosing pump	Prominent
Steam flow control valve with positioner	ARI
Plate Heat Exchanger	SPX
The Fit CIP is controlled by PLC with Touch Panel	Siemens
Stainless Steel – Control Panel	Rittal

Renox Stainless Steel co.,Ltd reserve the rights to introduce design modifications without prior notice.



RENOX



RENOX STAINLESS STEEL CO., LTD
55/46, MOO BAN BIGGERLAND,
MOO 3, TAMBUN LAMLUKKA,
AMPHOE LAMLUKKA,
PATHUMTHANI, 12150, THAILAND.

T : +66 2150 1968
F : +66 2150 1978
info@renoxss.com

RENOX RESOURCES SDN BHD
NO.72, JALAN MAS JAYA1,
KAWASAN PERINDUSTRAIN MAS JAYA,
CHERAS, SELANGOR,43200,
MALAYSIA.

T : +603 9080 1078
F : +603 9080 1079
malaysia@renoxss.com

PT.RENOX INDONESIA
GREEN SEDAYU BIZPARK DM.1,
NO11 JLN DAAN MOGOT,
KM18, JAKARTA BARAT,11840,
INDONESIA.

T : +6221 2966 0683
F : +6221 2966 0682
indonesia@renoxss.com