

CIP CLEANING IN PLACE

SORDI SINCE 1881

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What is a Cleaning in Place System?

Cleaning in place means that the equipment can be cleaned and sanitized without being dismantled.

In food and beverage processing industries integrated clean in place (CIP) solution play an essential role.

Sordi can offer both semi automatic and fully automated CIP



Correct cleaning of food processing plants is a basic requirement to produce food:

- healthy, this means to be safely consumed
- durable, this means suitable to stay on the market for the requested time (shelf-life)

The whole cleaning operation in the food sector is called SANITIZATION and it can be composed of 2 main phases:

CLEANING
DISINFECTION

*Cleaning MUST absolutely be made before the disinfection phase.
Both cleaning and disinfection eliminate only vegetative cells, not the spores.*

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Sanitization

Cleaning

The cleaning cycle in a dairy and beverage line has the following step:

- Recovery of product residues
- Pre-rinsing with water to remove loose dirt
- Cleaning with detergent
- Final rinsing

Disinfection

can be with chemical agent or thermal.

If this step is included, there are two options:

- the equipment should be kept with disinfectant during non production phase and/or
- before starting production hot water can flow inside the pipes.

Cleaning principles:

CHEMICAL ENERGY

- It is made by means of chemical products based on a limited number of active principles.
caustic detergent: It is usually caustic soda (NaOH)
- **Acid detergent:**
It is usually nitric acid (HNO₃)

THERMAL ENERGY

DETERGENTS:

- min temp: +45 ÷ 50°C (under these values it starts fats solidification)
- max temp: +65 ÷ 70°C (over these values it starts proteins denaturation)

KINETIC ENERGY

CIP (Cleaning In Place) it applies the turbulence motion of cleaning media.

- Ideal speed 1,5 ÷ 2,0 m/sec
- Result is strictly bound to the plant design and installation
- Typical obstacles: variation of pipes diameter, bends, valves, "T" unions.

Suggested example of Cleaning Program

STEP	TIME	ACTIVITES
Water cold rinsing	~ 5 minutes	To remove loose dirt
Hot water rinsing	~ 10 minutes	~ 50-55 °C to eliminate sugar and dirt
Soda recycling	~ 20 minutes	NaOH at 2/2.5% at ~ 60-65 °C mainly to remove fats
Rinsing of alkaline solution	~ 10 minutes	~ 50-55°C
Acid recycling	~ 15 minutes	HNO3 at 2/2.5 % at ~ 50-55 °C Mainly to remove proteins
Rinsing of acid solution	~ 10 minutes	~ 50-55 °C
Final rinsing with cold water	~ 5 minutes	with or without disinfectant at around 0.5%

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SORDI CENTRALIZED CIP

- Multi use detergents
- Composition of the detergents solution can be optimized for different circuit
- Solution is recovered
- Conductivity control
- Temperature, time, concentration of detergent adjustable
- Flow rate control (if required)
- Turbidity control (if required)
- Sanitizer addition (if required)
- Stabilization (if required)

SORDI DECENTRALIZED CIP

- Single use detergents
- Composition of the detergents solution can be optimized for a certain circuit
- Solution is considered finished after the first use
- Temperature, time control and adjustable
- Conductivity control (if required)

CIP SORDI MAIN FEATURE

- CIP HANDY
- CIP CLICK
- CIP 2SA
- CIP 3SA
- CIP 2A
- CIP 3A
- CIP 4A
- CIP 5A



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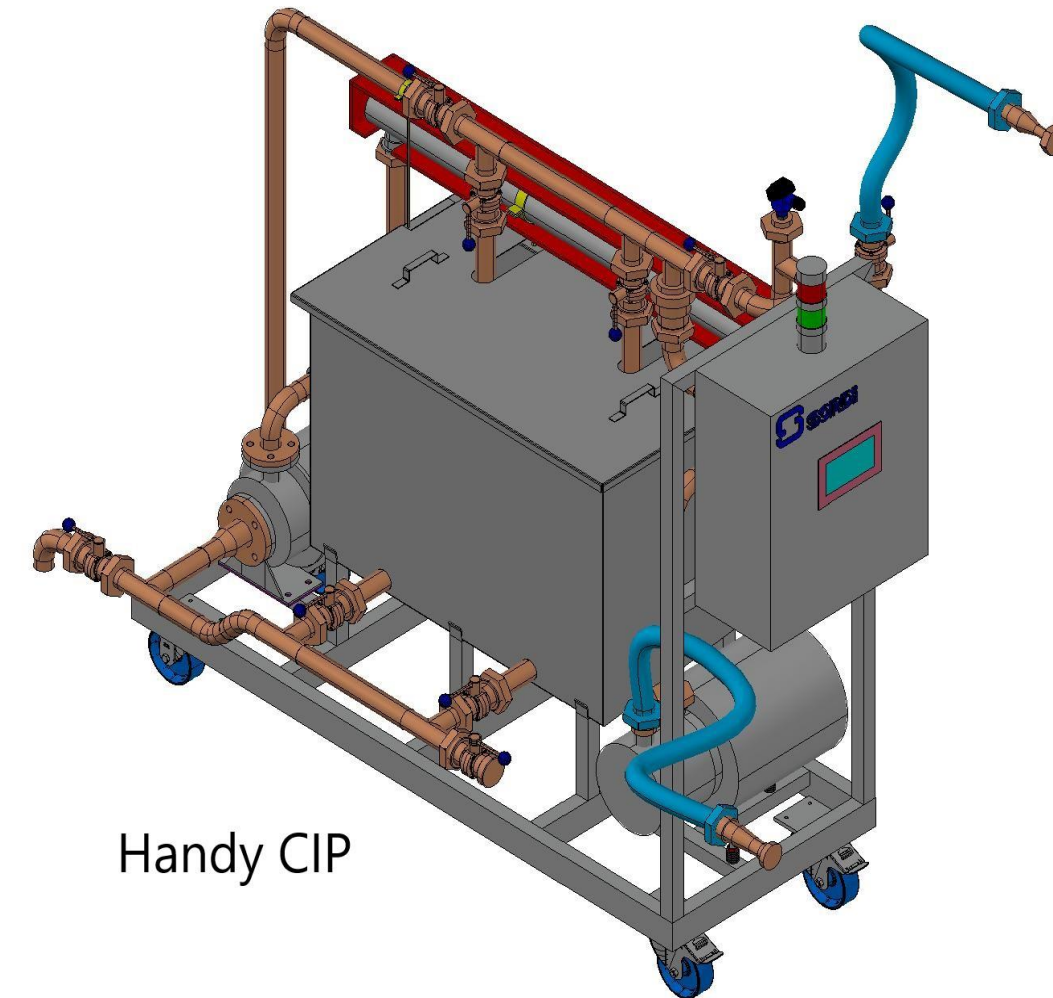


CIP HANDY

Sordi Handy CIP is a semi-automatic cleaning-in-place system mobile and decentralized.

Preassembled unit complete with 2 detergents tanks, feeding and return pump, electric resistance for heating the washing solutions and control panel.

This compact skid unit is on wheels.



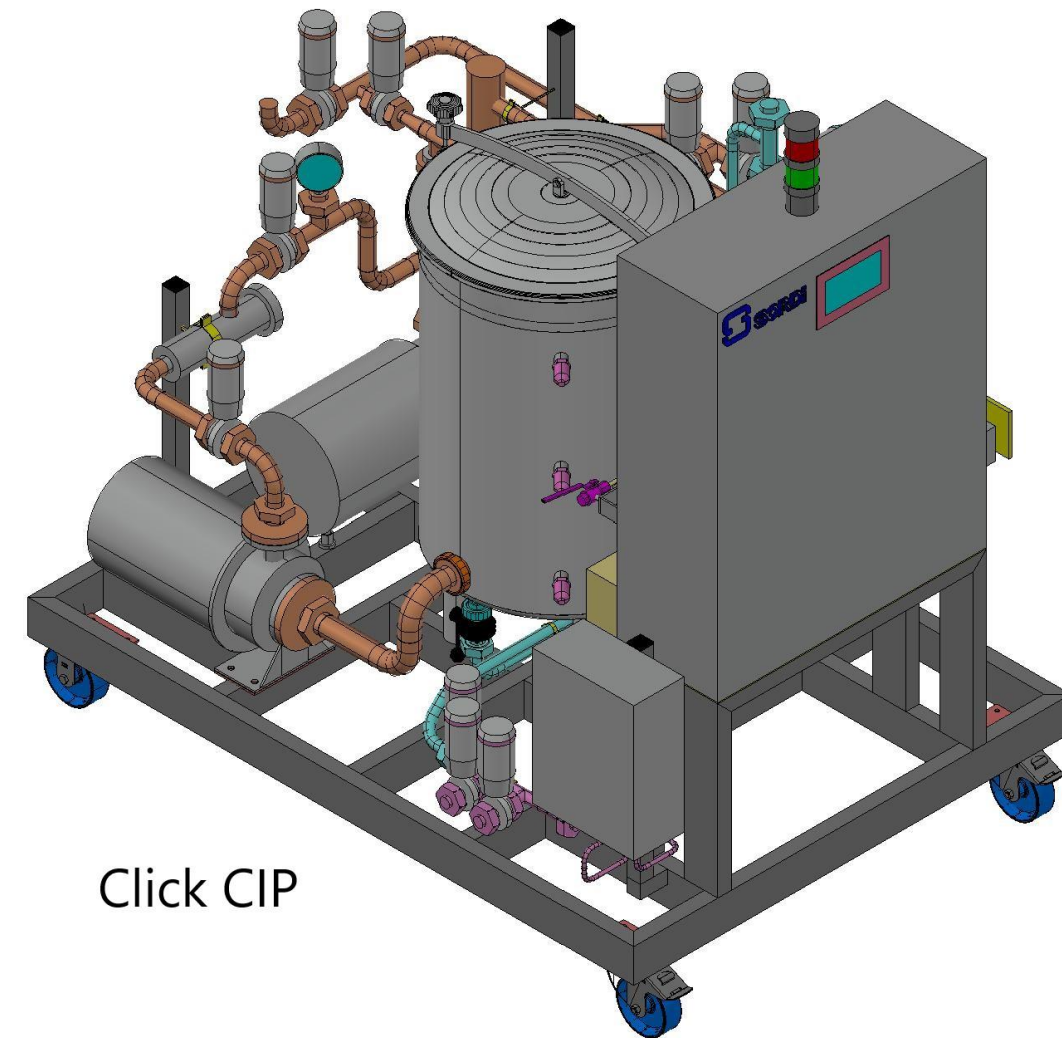
Handy CIP

CIP CLICK

Sordi Click CIP is an automatic cleaning-in-place system mobile and decentralized.

Preassembled unit complete with detergents tank, feeding and return pump, electric resistance for heating the cleaning solutions, control panel with PLC and HMI to control the working parameter.

This compact skid unit is on wheels.



Click CIP

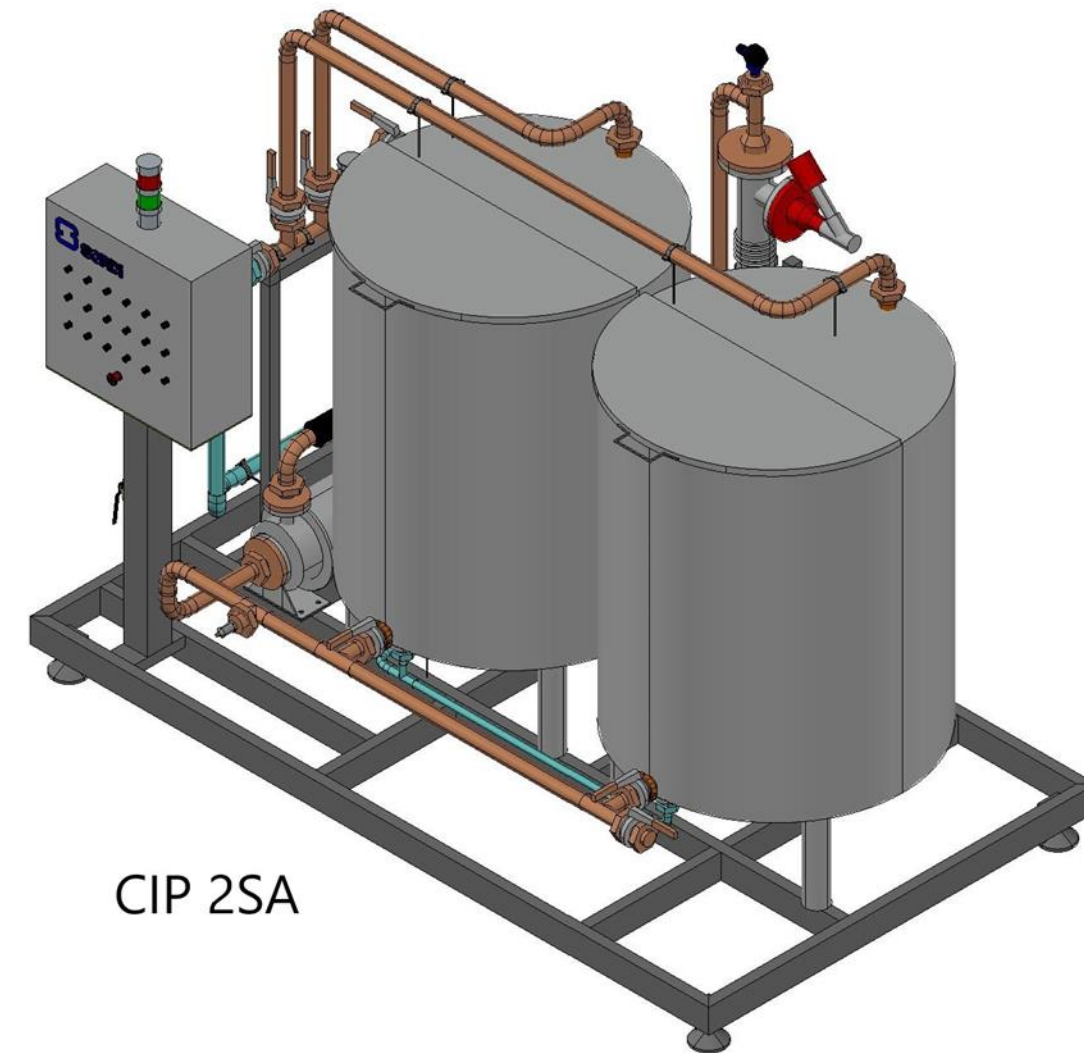
CIP 2SA

Sordi pre-assembled on skid CIP Cleaning Unit is a semi automatic cleaning-in-place system used for washing different units.

The capacity of the tanks can be 500 l, 1.000 l, 1.500 l and 2.000 l.
Cleaning flow rate up to 15.000 l/h

Cleaner addition system.

Automatic temperature control.



CIP 2SA

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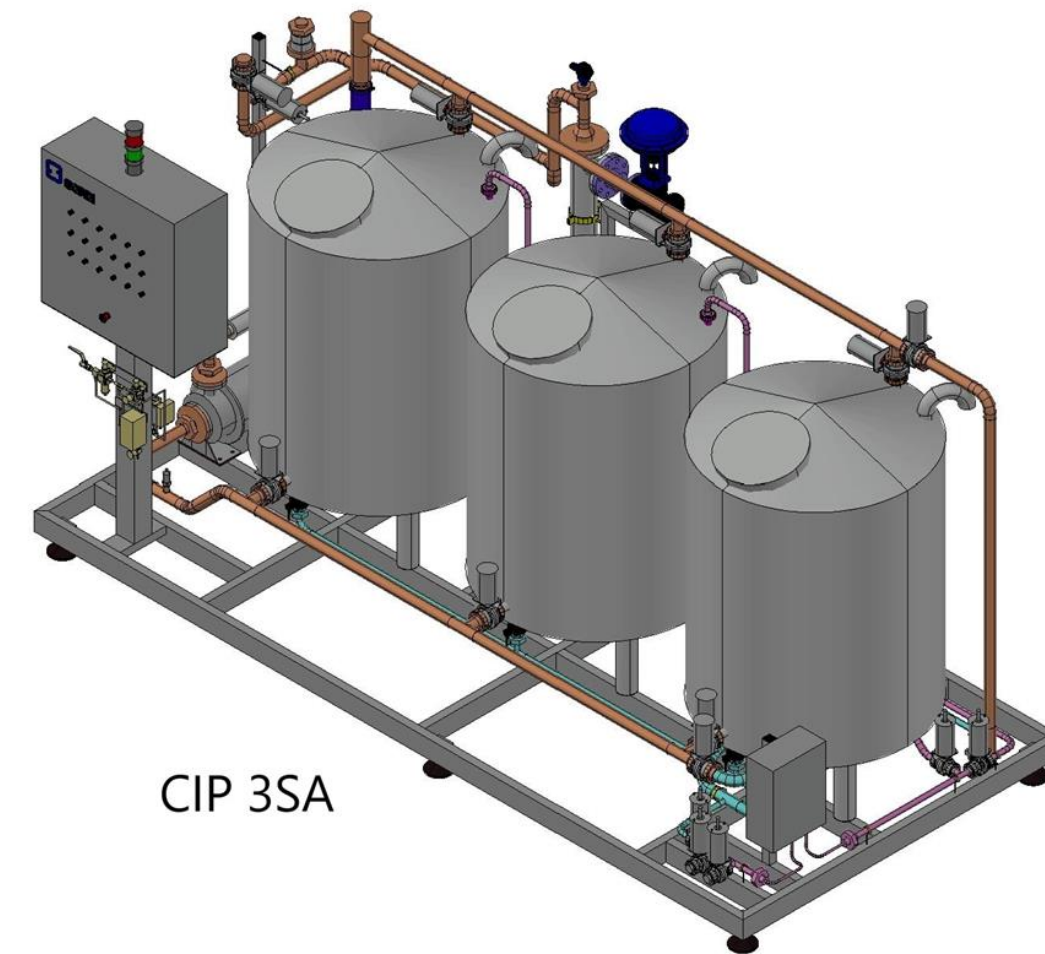
CIP 3SA

Sordi pre-assembled on skid CIP Cleaning Unit is a semi automatic cleaning-in-place system used for washing different units.

The capacity of the tanks can be 500 l, 1.000 l, 1.500 l and 2.000 l.
Cleaning flow rate 15.000 l/h

Cleaners addition system.

Automatic temperature control.



CIP 3SA

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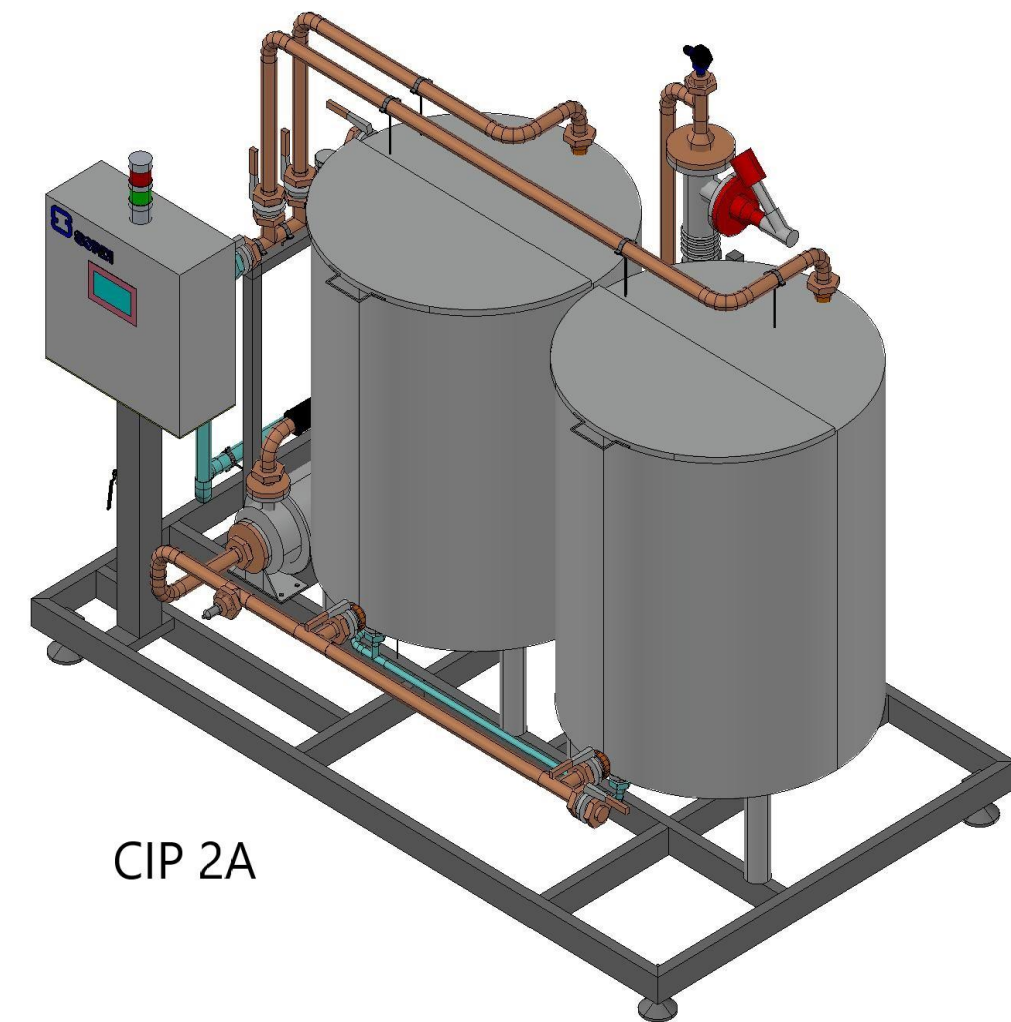
CIP 2A

Sordi pre-assembled on skid CIP Cleaning Unit is an automatic cleaning-in-place system. The capacity of the tanks can be: 500 l, 1.000 l, 1.500 l, 2.000 l. Cleaning flow rate: 15.000 l/h. The unit have a CIP line including feeding pump, tubular heater and instruments.

Cleaner addition system

Control panel with PLC and HMI to control CIP parameters: CIP steps, temperature, cleaner concentration, alarm, working status.

Optional flow rate control, disinfectant additions and CIP return pump



CIP 2A

CIP 3A

Sordi pre-assembled on skid CIP Cleaning Unit is an automatic cleaning-in-place system.

The capacity of the tanks can be: 500 l, 1.000 l, 1.500 l, 2.000 l.

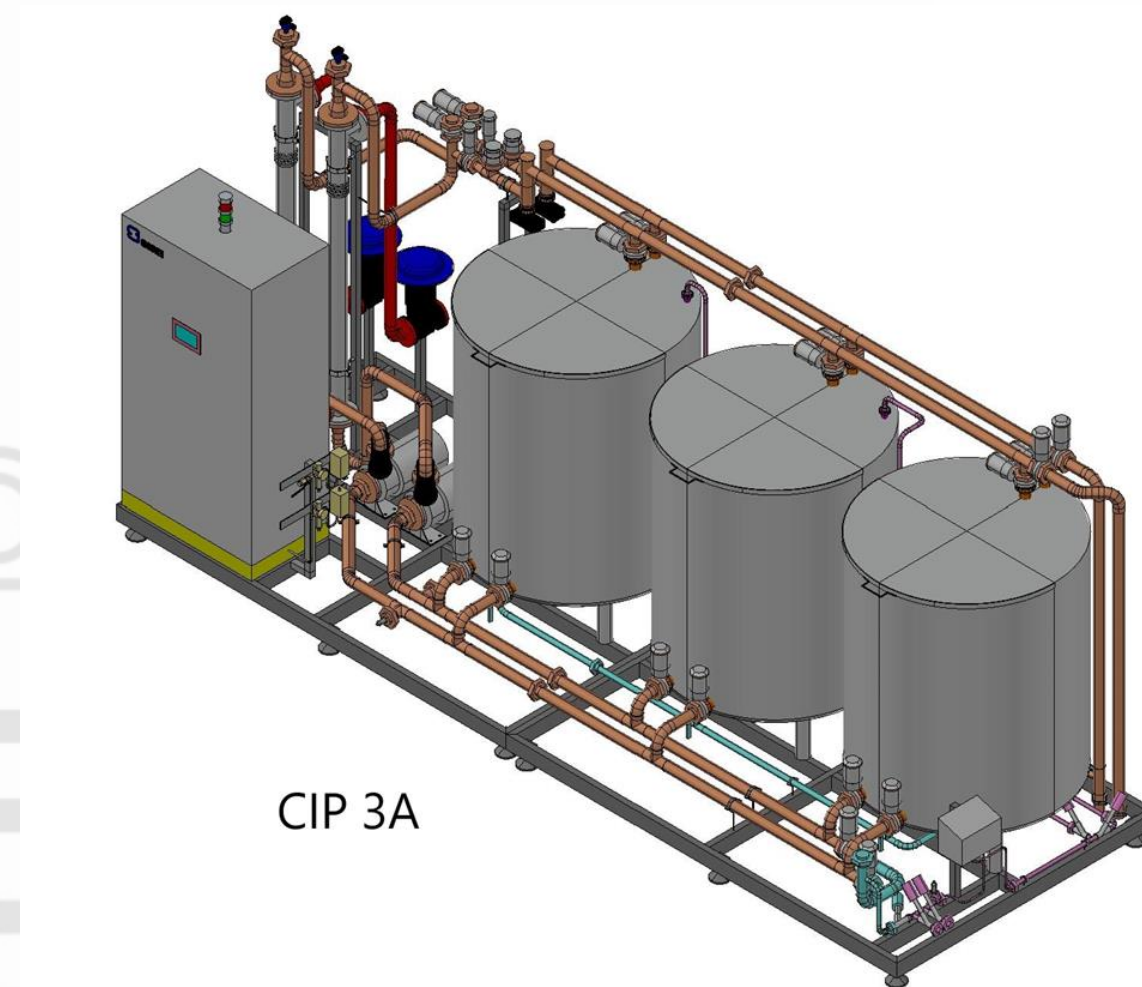
Cleaning flow rate: 15.000 l/h.

The unit can have 1 or 2 CIP lines including feeding pump, tubular heater and instruments.

Cleaners addition system

Control panel with PLC and HMI to control CIP parameters: CIP steps, temperature, cleaner concentration, alarm, working status.

Optional flow rate control, disinfectant additions and CIP return pump



CIP 3A

CIP 4A

Sordi pre-assembled CIP Cleaning Unit is an automatic cleaning-in-place system.

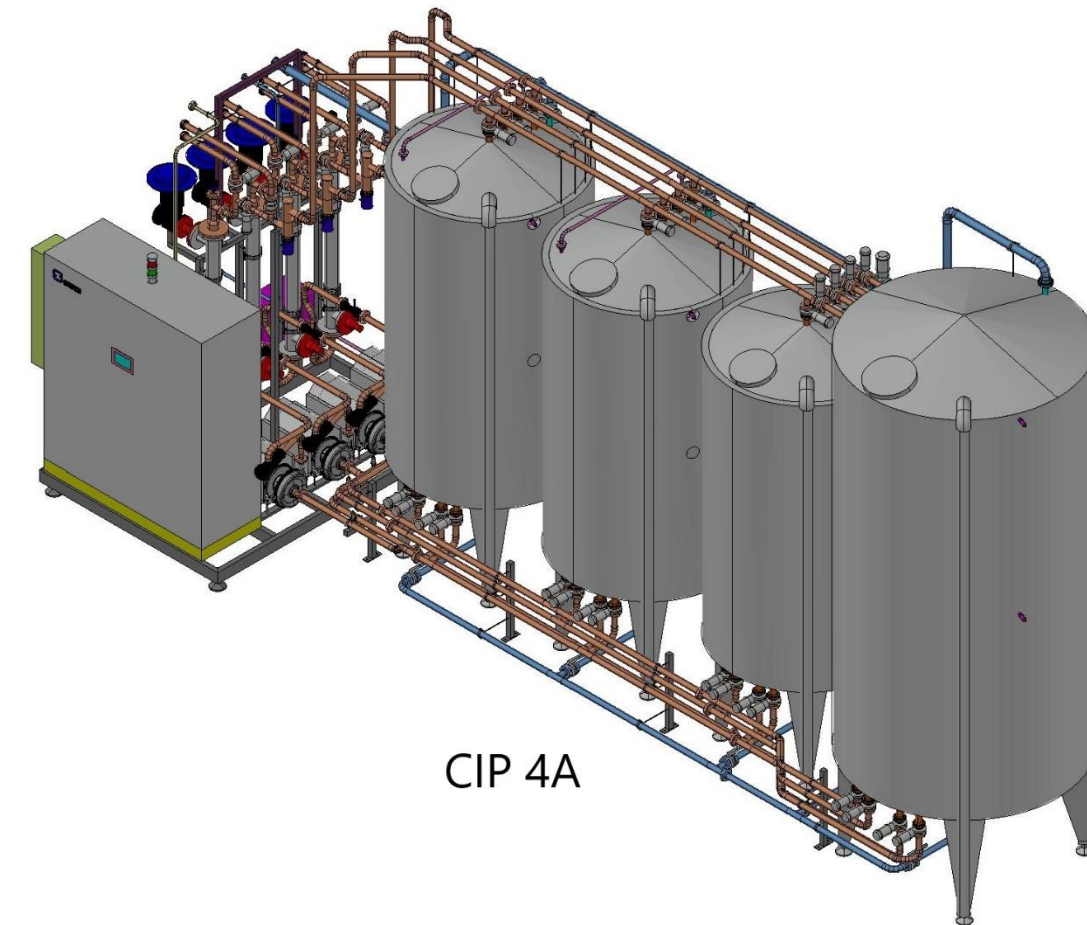
The capacity of the tanks can be designed up to 3.000 l, 5.000 l, 10.000 l.

The unit can have up to 5 CIP lines including feeding pump, tubular heater and instruments.
Cleaning flow rate: 20.000 l/h or 30.000 l/h

Cleaners addition system.

Control panel with PLC and HMI to control CIP parameters: CIP steps, temperature, cleaner concentration, alarm, working status.

Optional flow rate control, disinfectant additions, automatic concentration control on tanks and CIP return pump.



CIP 5A

Sordi pre-assembled CIP Cleaning Unit is an automatic cleaning-in-place system.

The capacity of the tanks can be designed up to 3.000 l, 5.000 l, 10.000 l.

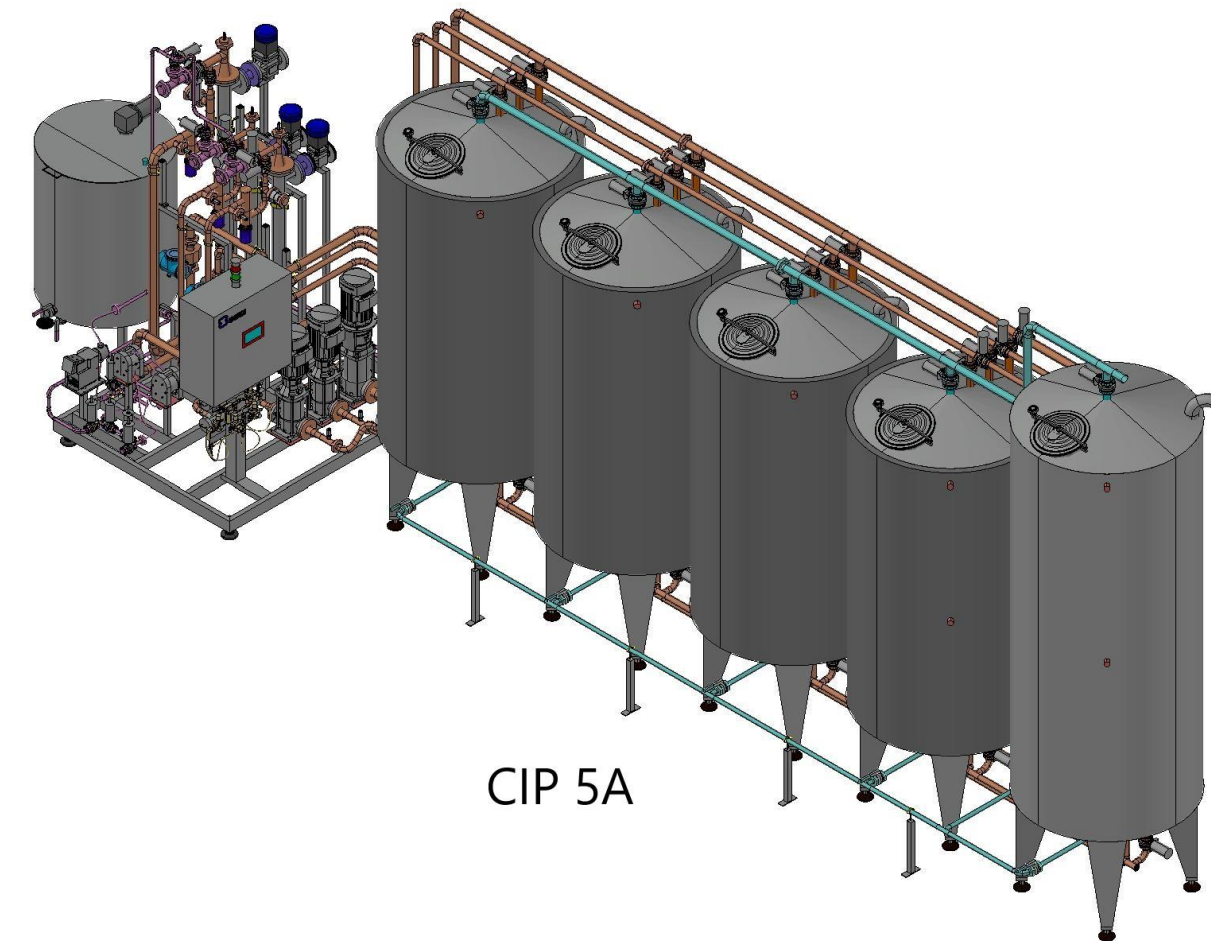
The unit can have up to 5 CIP lines including feeding pump, tubular heater and instruments.

Cleaning flow rate: 20.000 l/h or 30.000 l/h

Cleaners addition system.

Control panel with PLC and HMI to control CIP parameters: CIP steps, temperature, cleaner concentration, alarm, working status including hot water sanitization.

Optional flow rate control, disinfectant additions, automatic concentration control on tanks and CIP return pump.



Automatic CIP system overview

- Economical use of water, caustic solution and energy by recycling the rinsing water, hot water and caustic solution and thereby reduction of waste water quantity and charge at the same time.
- Automatic increase in concentration of the caustic solution as well as automatic heating of caustic solution and water.
- Automatic control of the cleaning process.
- Variable programs, easy to change by the operator, protected via password.

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