

# TECNIC

BIOPROCESS EQUIPMENT MANUFACTURING

**e**PROD **CLEANING SYSTEMS**



TECNIC's cleaning systems (CIP) are commonly used for cleaning bioreactors, fermenters, mix vessel and other equipments used in biotech, pharmaceutical, food and beverage manufacturing. All the equipment is designed and manufactured in our facilities in Riudarenes (Girona), Spain.

The CIP cycle is part of the bioreactor cleaning process and consists of six phases where cleaning or rinsing phases are mixed with acidic or basic chemical reagents cleaning phases.

## eSCADA

Based on a Supervising Control And Data Acquisition (SCADA) type system and built of the Wonderware System Platform architecture, this software allows the management of basic process control parameters up to advanced recipes and report management.

By means of loops, this software allows to control variables such as pH (acid, base, CO<sub>2</sub>), pO<sub>2</sub> (up to 4 cascades including gases and agitation), temperature and antifoaming, as well as the prediction of cell behaviour at metabolic level with in-situ cell viability sensors

## eSCADA BASIC

The standard software that runs the equipment, where the process can be controlled, visualized and graphed, as well as export results in an efficient way.



## eSCADA ADVANCED(optional)

The upgraded version for process automation that allows recipes management and control loops. Both versions can include GMP and CFR 21 Part 11 modules.



Vent Filter



Impulsion Pump:  
PACKO or KLX

360° Spray Ball

ePROD Vessel

Our vessels are made of Stainless Steel 316L with working volumes of 85 L.

10" Capacitive touch screen with the software eSCADA

Manual or Automatic Valves

Peristaltic Pump for detergent outlet

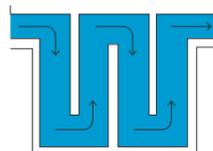
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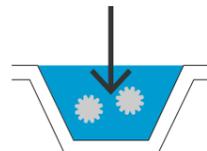
### PHASES CIP CYCLE

2

**PRE-RINSE:** wets the interior surface, removes most of the remaining residue, dissolves sugars and partially melts fats

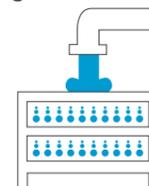


**CAUSTIC WASH:** washes fats making them easier to remove



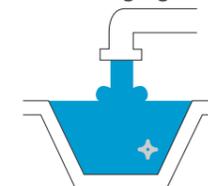
3

**INTERMEDIATE RINSE:** water flushes out traces of detergent remaining



4

**FINAL RINSE:** with either DI, RO or city water to flush residual cleaning agents



5

**SANITIZING RINSE:** helps to kill microorganisms before starting the next production



6

**DEP:** removes moisture remaining

