



B I O - P H A R M

CIP Washers

Clean-In-Place Systems

Sani-Matic Clean-In-Place Systems for the Bio-Pharm industry are custom engineered to specific plant application and utility requirements to ensure effective and efficient cleaning of process equipment automatically.

Proper CIP design and sizing will not only ensure sufficient flow and pressure to remove residue adequately, and rinse thoroughly. Sani-Matic CIP designs will also save cycle time, reduce water and chemical usage, and minimize discharge and utility costs. Balancing all factors to create an optimum system is our goal. CIP Systems can be designed to recirculate or provide “once-through” cleaning, depending on the product residue. Multi-tank systems can provide additional benefits of faster turnaround time if cleaning processes are more frequent.

WHAT MAKES US DIFFERENT?

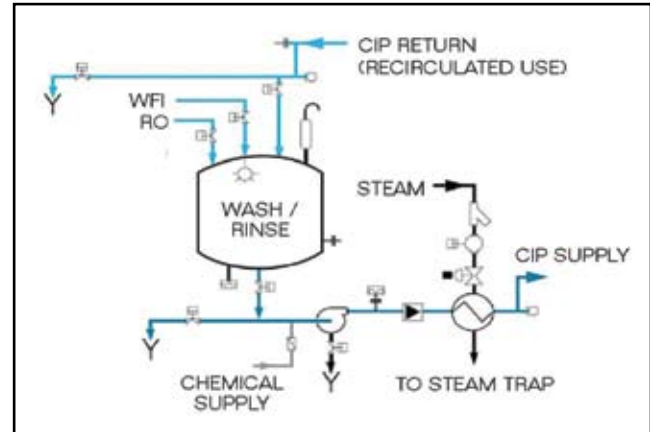
Sani-Matic has the expertise to engineer an effective solution for your cleaning application. Specialists in cleaning technology, the Sani-Matic team will provide valuable insight and guidance during your project from beginning to end. Developing a creative design concept based on decades of practical experience, we can ensure you are purchasing a system which is dependable and cost-effective for the long term. Sani-Matic has in-house programming staff and field technical service with the expertise to develop and optimize your cleaning cycles and integrate the CIP functions with your plant Process control systems. Because the Sani-Matic team understands the unique challenges of cleaning, we add value to your CIP projects.



Our manufacturing facilities and processes are controlled and efficient, ensuring that your system is compliant and on-schedule. Project management and documentation is detailed and complete, saving you time and resources while achieving your project's budget and target start-up date.

One Tank

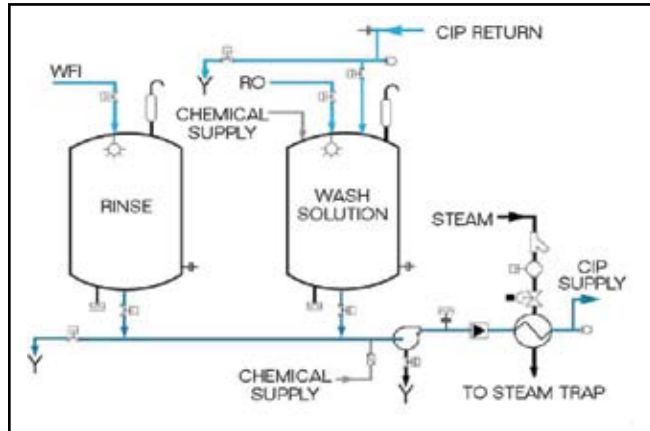
Single-use System



- Single-use source of wash solution and rinse water
- Lower space requirement
- Portable or stationary design is available
- Once through or recirculated

Two Tank

Detergent & Rinse System



- Permits once through or recirculated flow of wash solution
- Used where water utilities are limited
- Reduced wash cycle times

CIP DESIGN SIZING FACTORS

CIP system sizing is determined by dimensions of the vessels and pipelines to be cleaned.

Supply pump flow is determined by the vessel size and the largest pipeline diameter. Turbulent cleaning action requires 5-7 fps flow in lines. Proper cascading cleaning action by a sprayball is 3 gpm per ft of tank circumference.

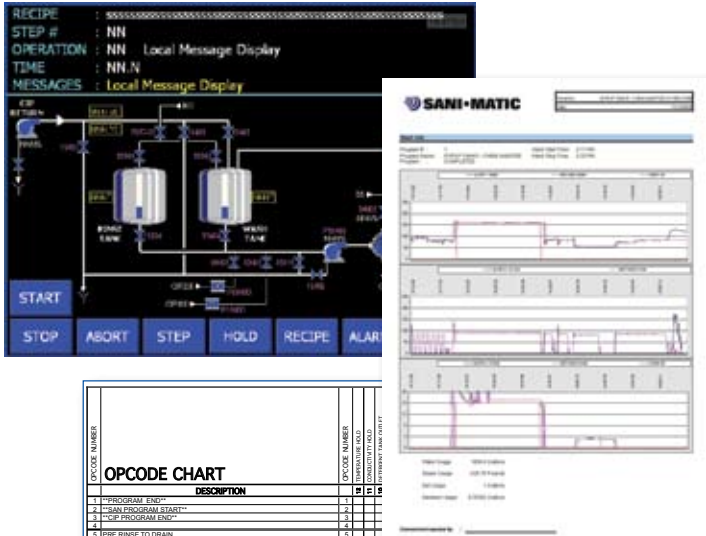
Pressure is determined by the spray device requirement (typically 25psi, plus any line loss).

Sizing the wash and rinse tank volume is determined by the pipeline holdup volume (gal per 100ft) and the available inlet water capacity and the estimated cleaning program time.

Tube OD	Tube ID	Volume Per 100'	Industry Minimum 5 ft/sec	Recommended 7 ft/sec	Maximum Gravity Flow thru Outlet
0.5"	0.37"	0.56 gal	2 GPM	3 GPM	
0.75"	0.62"	1.57 gal	5 GPM	7 GPM	
1.0"	0.87"	3.1 gal	10 GPM	13 GPM	
1.5"	1.37"	7.7 gal	23 GPM	32 GPM	35-40 GPM
2.0"	1.87"	14 gal	43 GPM	60 GPM	75-80 GPM
2.5"	2.37"	23 gal	69 GPM	96 GPM	115-120 GPM
3.0"	2.87"	34 gal	101 GPM	141 GPM	190-200 GPM
4.0"	3.834"	60 gal	180 GPM	252 GPM	250-275 GPM
6.0"	5.834"	139 gal	417 GPM	583 GPM	720 GPM

Controls

Easier/Faster to Validate



The control interface displays a process flow diagram with tanks and pumps, and a data trend graph showing various parameters over time. The interface includes buttons for START, STOP, ABORT, STEP, HOLD, RECIPE, and ALARM.

OPCODE NUMBER	DESCRIPTION	OPCODE NUMBER	DESCRIPTION
1	"PROGRAM END"	1	
2	"CIP PROGRAM START"	2	
3	"CIP PROGRAM END"	3	
4	"RSE RINSE TO DRAIN"	4	
5	"RSE RINSE TO DRAIN"	5	
6	"RSE RINSE TO DRAIN"	6	
7	"RSE RINSE TO DRAIN"	7	
8	"RSE RINSE TO DRAIN"	8	
9	"DETERGENT WASH"	9	
10	"RSE RINSE TO DRAIN"	10	
11	"CHASE RINSE TO DRAIN W/ DETERGENT"	11	
12	"CHASE RINSE TO DRAIN W/ DETERGENT"	12	
13	"CHASE RINSE TO DRAIN W/ DETERGENT AND CONDUCTIVITY HOLD"	13	
14	"CHASE RINSE TO DRAIN W/ ACID AND CONDUCTIVITY HOLD"	14	
15	"CHASE RINSE TO DRAIN W/ ACID AND CONDUCTIVITY HOLD"	15	
16	"CHEMICAL SANITIZE"	16	
17	"CHASE RINSE TO DRAIN W/ ACID AND CONDUCTIVITY HOLD"	17	
18	"CHASE RINSE TO DRAIN W/ ACID AND CONDUCTIVITY HOLD"	18	
19	"CHASE RINSE TO DRAIN W/ ACID AND CONDUCTIVITY HOLD"	19	
20	"CHASE RINSE TO DRAIN W/ ACID AND CONDUCTIVITY HOLD"	20	
21	"PUMPBACK TO DRAIN"	21	
22	"PUMPBACK W/ DETERGENT RECOVERY"	22	
23	"PUMPBACK W/ ACID RECOVERY"	23	
24	"RINSE TO DRAIN"	24	
25	"RINSE TO DRAIN WITH RETURN CONDUCTIVITY HOLD"	25	
26	"RINSE WITH DIRT RECOVERY AND RETURN CONDUCTIVITY HOLD"	26	
27	"RINSE WITH ACID RECOVERY AND RETURN CONDUCTIVITY HOLD"	27	
28	"RINSE WITH DIRT RECOVERY"	28	
29	"RINSE WITH ACID RECOVERY"	29	
30	"RINSE WITH ACID RECOVERY"	30	

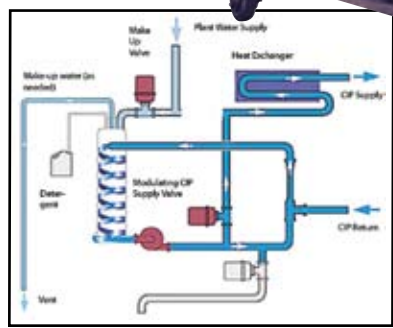
Sani-Matic has in-house programmers and authorized UL panel shop who design, manufacture, pre-test, startup and support of all types of Control Systems for cleaning systems. Because the team specializes in cleaning applications, Sani-Matic has developed expertise and efficiencies that have advantages over other fabricators or process integrators. Sani-Matic has designed, manufactured and supported thousands of CIP systems and other cleaning related systems.

Understanding the unique aspects of an effective cleaning program, Sani-Matic developed a very flexible & easy-to-understand OP-Code Recipe Editor that allows the customer to manipulate the system hardware to optimize their cleaning programs. This can result shorter total cycle time, lower water & chemical usage, more precise control to setpoints and detailed alarms which reduce troubleshooting time.

Soon to be released, the new Sani-Trend Data Acquisition System collects and stores cleaning cycle data, events/alarms, and operator information onto a PC. Operating usage of water, chemical, and utilities may be calculated and trended. Sani-Trend reports are in easy to use Excel format, and provide reliable, secure information giving you valuable insight on your cleaning process.

UltraFlow

UltraFlow technical brochure available separately.



The Sani-Matic UltraFlow CIP is patented technology which uses an eductor, vortex air separation chamber and modulating valves to control the CIP supply and return flows. This unique CIP design successfully brings air & water back in the return flow, separates the air, keeping the supply pump primed. The UltraFlow uses much less water than traditional CIPs and is flexible to clean a wide variety of circuits.

ADVANTAGES

- Reduce water usage
- Lower chemical consumption
- Eliminate installation costs
- Increase flexibility

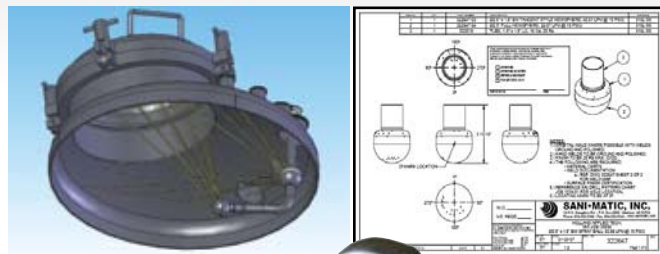
THE IDEAL SOLUTION FOR:

- Vessels with low and/or small outlets
- Variable supply and return flow (1 to 100 GPM)
- Portable - Avoid investment in permanent supply & return lines
- Locations with limited/low water volume available
- Economical replacement for an existing or outdated CIP
- Installations where available floor space is limited
- Not appropriate for "once through" non-recirculated processes

CIP Features

Spray Devices

Custom Engineered and Precision Drilled



- Custom engineered in 3D
- Precision drilled
- Pass Riboflavin testing first time
- Documented for future replacement without re-validating

Sani-Matic designs and manufactures a complete range of sprayballs and associated solution tubes and tank fittings.

Utilizing the latest technology, Sani-Matic has engineered a method to model a process vessel in 3D and design the most effective spray device and drill pattern to ensure proper coverage of all ports and surfaces. With decades of experience in spray technology and Bio-Pharm CIP applications, the Sani-Matic team understands the spray dynamics required to ensure adequate flows, pressures and geometries will dependably clean your process equipment.

Sani-Matic provides complete documentation and ID marking for ease of validation and future replacement. Responsive service and reliable delivery make Sani-Matic the preferred supplier of Spray Devices in the market today.

Documentation

Faster & Easier Validation

- Operation and maintenance manuals
- Recommended spare parts list
- Instrument lists
- Instrumentation calibration procedures
- Performance data
- Material certificates
- Weld qualification and inspection records
- Inspection test results, reports and certificates
- ASME data
- Component catalog cut sheets
- As built assembly drawings
- As built process and instrumentation diagrams
- As built electrical drawings
- Annotated PLC ladder diagrams

OPTIONAL

- (FRS/FDS) Functional Design Specifications
- Control System Design Specification (HRS and SRS)
- (FAT) Factory Acceptance Test report
- (SAT) Site Acceptance Test document
- IQ/OQ installation and operation qualification
- Cleaning and passivation report
- Weld video record (Boroscope)

Sani-Matic personnel are active participants in the following organizations:

ISPE-International Society of Pharmaceutical Engineers

Co-developer & Co-leader of "Cleaning Technology" course

ASME-American Society of Mechanical Engineers

BPE (Bio Processing Equipment) CIP task group

AWS-American Welding Society

D18 Team committee for sanitary welding

3A-Sanitary Standards

Member of board of directors and task committees

In-house engineering and operations

Custom engineered to order – solidworks 3D Cadd designs

Electrical design and programming in-house

Manufacturing work team dedicated to Bio-Pharm

Authorized UL panel shop

ASME certified shop – welding inspector and trainer

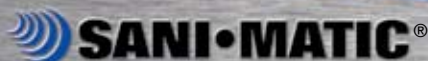
Project Management – manage Gantt scheduling, change orders, FAT

Complete Technical Service Staff offering:

Documentation

Field start-up and training

Factory support after start-up



1915 S. Stoughton Road • P.O. Box 8662 • Madison, WI 53708

Phone: 608-222-2399 • Fax: 608-222-5348 • info@sanimatic.com

www.sanimatic.com

Pharm CIP-5536 3/07