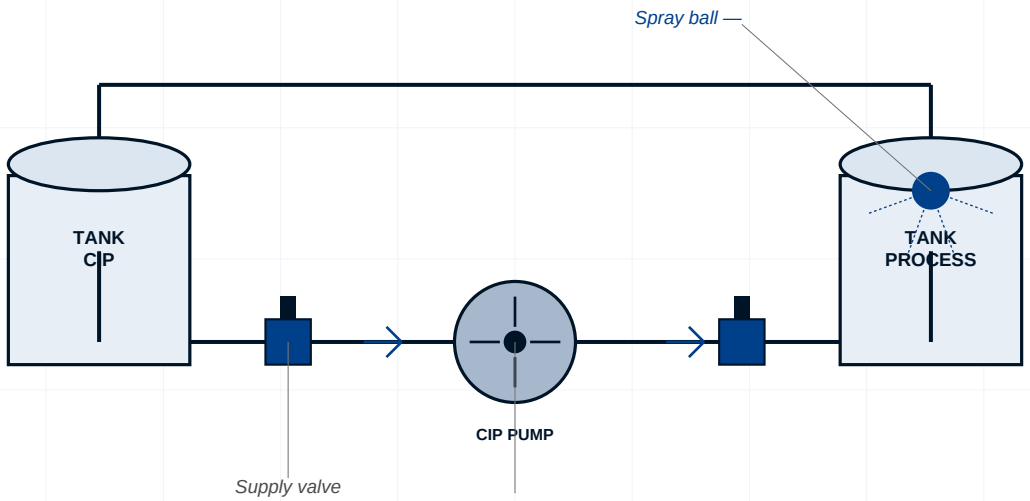
CIP / SIP SYSTEMS SKID-MOUNTED CLEANING PACKAGES

Custom-engineered Clean-in-Place (CIP) and Sterilize-in-Place (SIP) systems for hygienic process plant cleaning. Skid-mounted packaged units with chemical dosing, heat exchange, recirculation pump, valves, instrumentation and PLC control. Available as single-tank, multi-tank or once-through configurations. Standard recipes for caustic, acid and sanitizer cycles. Built per ASME BPE for pharma/biotech or 3-A for food/dairy.

CONFIGURATION	CAPACITY	FLOW	TEMP	CONTROL	STANDARD
Single/Multi-Tank	500 – 10000 L	5 – 60 m³/h	Up to 95°C	PLC + HMI	3-A / ASME BPE

TECHNICAL DRAWING

DWG: CE-CIP-001



CIP / SIP SYSTEM — SIMPLIFIED SCHEMATIC

Closed-loop Clean-in-Place circuit · Skid-mounted package

CASPIAN EDGE INC. NORTH YORK, ON, CANADA	
DWG NO: CE-CIP-001	SCALE: NTS
UNIT: mm	VIEW: SCHEMATIC

IN THIS DATASHEET

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CIP / SIP SYSTEMS — SKID-MOUNTED CLEANING PACKAGES

DESIGN SPECIFICATIONS — SECTION 1

System Type	Single-tank / Multi-tank / Once-through
Tank Material	316L SS, insulated
Heating	Steam jacket / Plate HX
Cooling	PHE with chilled water
Pump	Sanitary centrifugal
Valves	Pneumatic on/off + modulating
Instrumentation	Flow, pressure, temp, conductivity
Control	PLC + HMI (Siemens/AB)

OPERATING CONDITIONS — SECTION 2

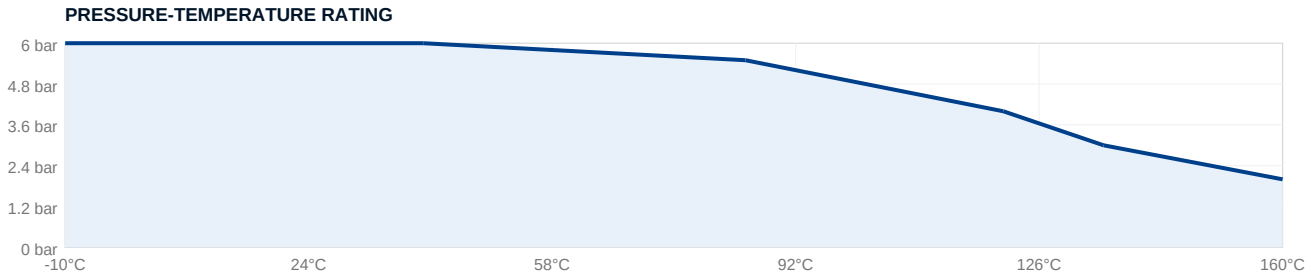
PRESSURE RATING

Tank Pressure	Atmospheric	—
Supply Line	3 – 5	bar
Return Line	0.5 – 1	bar
Steam	3.5	bar typ

TEMPERATURE RANGE

CIP Caustic	+75 to +85	°C
CIP Acid	+50 to +65	°C
SIP Steam	+121 to +135	°C
Rinse	Ambient or +60	°C

PRESSURE-TEMPERATURE RATING CHART — SECTION 3



SURFACE FINISH OPTIONS — SECTION 4

DESIGNATION	RA (µM)	RA (µIN)	METHOD	APPLICATION
Standard	≤ 0.8	≤ 32	Mechanical polish	Food, dairy, beverage
Premium	≤ 0.5	≤ 20	Mech. polish + buff	Pharmaceutical
EP (BPE SF4)	≤ 0.38	≤ 15	Electropolish	Biotech, high-purity
Mirror	≤ 0.25	≤ 10	EP + final buff	Critical bioprocess

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CIP / SIP SYSTEMS — SKID-MOUNTED CLEANING PACKAGES

MATERIALS OF CONSTRUCTION — SECTION 5

COMPONENT	MATERIAL	FUNCTION	SPEC
Solution Tanks	316L SS, insulated	Chemical storage	ASME BPE
Piping	316L SS	Distribution	ASTM A270
Heat Exchanger	316L plates	Heating/cooling	3-A compliant
Pump	316L SS impeller	Recirculation	EHEDG hygienic
Valves	316L SS	Flow control	3-A sanitary
Spray Balls	316L SS, EP	Tank coverage	3-A 78-03
Instruments	SS sanitary	Process monitoring	3-A flush mount

316L CHEMICAL COMPOSITION — SECTION 6

ELEMENT	SYMBOL	MIN %	MAX %	FUNCTION
Chromium	Cr	16.0	18.0	Corrosion resistance
Nickel	Ni	10.0	14.0	Ductility, toughness
Molybdenum	Mo	2.0	3.0	Pitting resistance
Carbon	C	—	0.03	Low carbon (L grade)
Manganese	Mn	—	2.0	Deoxidizer
Silicon	Si	—	0.75	Deoxidizer
Phosphorus	P	—	0.045	Impurity (limit)
Sulfur	S	—	0.030	Impurity (limit)

SIZE CHART & DIMENSIONS — SECTION 7

TANK SIZE	FLOW RATE	HEATER	POWER	FOOTPRINT	APPLICATION
500 L	5 m³/h	30 kW	40 kVA	3 × 2 m	Lab / Pilot
1000 L	10 m³/h	60 kW	80 kVA	4 × 2 m	Small process
2000 L	20 m³/h	120 kW	150 kVA	5 × 2.5 m	Medium plant
5000 L	40 m³/h	240 kW	300 kVA	6 × 3 m	Large plant
10000 L	60 m³/h	360 kW	450 kVA	8 × 4 m	Industrial

STANDARDS & CERTIFICATIONS — SECTION 8

STANDARD	DESCRIPTION	STATUS
3-A 78-03	Spray cleaning devices	Compliant
ASME BPE-2022	Bioprocessing CIP	Compliant
EHEDG Type EL	Hygienic equipment	Compliant
ISA-88	Batch control standard	Compliant (PLC)
CE / UL	Electrical safety	Compliant
FDA 21 CFR 11	Electronic records (option)	Available
IEC 61131	PLC programming	Compliant

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TYPICAL APPLICATIONS SECTION 9

DAIRY	BREWING & WINE	PHARMA & BIOTECH
• Pasteurization circuits	• Wort transfer	• WFI distribution
• Cheese processing	• Fermentation tanks	• Purified water systems
• Yogurt production	• Bottling lines	• API manufacturing
• Milk separators	• Brewhouse CIP	• Bioreactor connections
• Cream lines	• Filtration	• Sterile filling
• 3-A compliant systems	• Carbonation systems	• Process skids

INSTALLATION GUIDELINES SECTION 10

Site Preparation: Concrete pad with drainage, leveled to ±3mm. Utility connections: 3-phase power, steam, cooling water, instrument air, drain to neutralization. **Skid Placement:** Position skid with maintenance access on all sides (minimum 1m clearance). Verify utility connection lengths and routings. **Piping Connection:** Connect supply and return lines using sanitary tri-clamp fittings. Verify alignment to avoid stress on connections. **Electrical:** Connect power, control signals and Ethernet (if applicable). Verify earth ground connection per local code. **Commissioning:** 1) Mechanical commissioning – verify all components installed correctly. 2) Wet commissioning – fill tanks with water, verify pump/valve/instrument operation. 3) Process commissioning – run recipes, verify temperatures and concentrations. 4) PQ/OQ documentation per validation protocol.

MAINTENANCE SCHEDULE SECTION 11

INTERVAL	ACTION	NOTES
Daily	Operations log review	Verify cycle completion
Weekly	Valve cycle test	Verify all valves operate
Monthly	Chemical concentration check	Calibrate dosing
Quarterly	Heat exchanger inspection	Check fouling
Annually	Full system shutdown audit	PM all components
Per protocol	Validation re-qualification	PQ for pharma

REQUEST A TECHNICAL QUOTATION

Send your specifications and we will respond with detailed pricing, lead time and documentation.

INCLUDE IN YOUR RFQ:
Quantity · Size (DN) · Material grade · Seal material · Surface finish · Required certifications · Delivery date

SUBMIT RFQ →
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