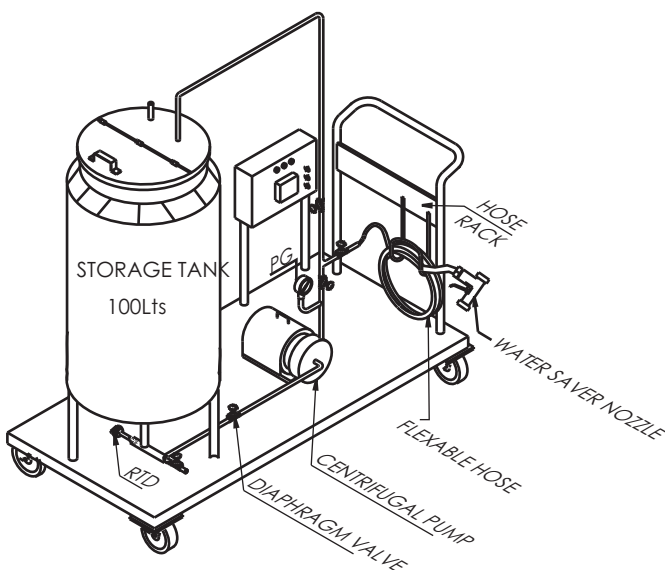


## CIP / SIP

Industrial EquipWash Inc has over two decades of experience in the design, fabrication, installation and start-up of CIP & SIP systems for the pharma, bio- pharma, dairy, food and other processing industries. Clean-in-place (CIP) & Steam-in-place ( SIP) technology offers significant advantages to manufacturing facilities, for efficient and reliable cleaning of process equipment and piping at lower cost to improved product quality. CIP technology involves the use of chemicals, sterilents, high pressure pumps, spray nozzles and spray balls and aseptic design principles to ensure that large scale process are free of dirt, organic contaminants and micro-organisms.

### Benefits of CIP

The development of CIP and SIP technology , i.e., the automatic, reproducible and reliable delivery of cleaning solutions, rinse and wash water to and through process equipment and process piping, has improved both product quality and plant hygiene. Furthermore, the ability to clean a processing system, incorporating tanks, pumps, valves, filters, heat exchange units and process piping, without the need to disassembled all or part of that system, significantly reduces cleaning costs and minimizes the handling of chemicals to provide a safer environment for plant personnel. These systems may be integrated into existing processing systems, but more importantly, clean-in place technology should be included in the design of any new process systems, to be simultaneously incorporated with the design of the process flows, the controls and automation.



### Designs and Configurations

IEWI offers several designs of CIP system. The “single-pass” and the “recirculating” configuration are often utilized in the processing industries, since both require minimal capital investment, typically have a small footprint and are flexible, in that the unit can readily adjust to a range of cleaning protocols. However, the cost for the chemicals, water & steam and for disposal of waste water are higher than for other designs.

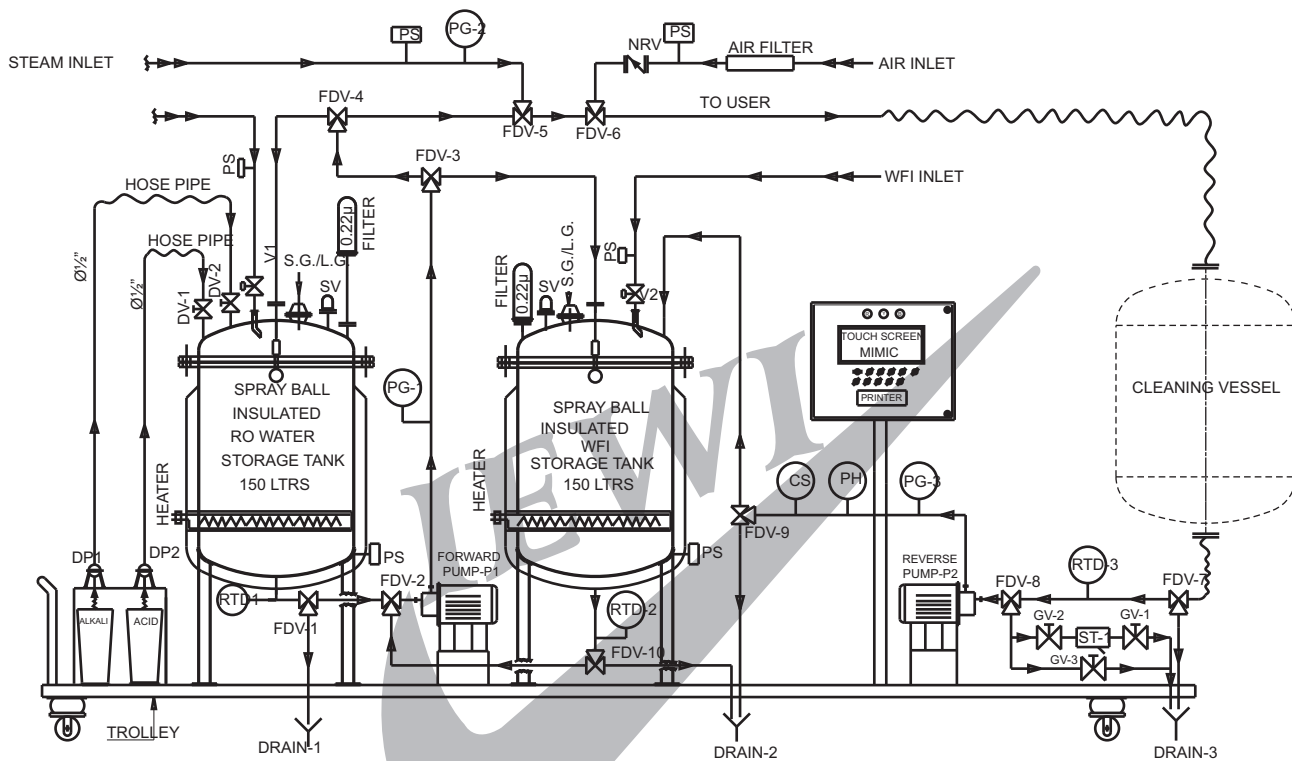
The “ re-used design” provides for the recycling of the water and possible regeneration of the cleaning chemicals. These CIP systems have “single-pass” systems and there is a greater risk of cross-contamination during operation. The “re-use”systems also lack flexibility, in that a single temperature and single concentration of cleaning solution is used for whole process systems, unless additional vessels are included in the CIP unit. The pharma and bio-pharma industries prefer to use a “multi-tank” configuration, with independent, stainless steel tanks being used to hold water of different quality, e.g., Deionized water (DI), hot or cold water for injection (WFI) and water from reverse osmosis units (RO). These multi-tank systems are operated as if they were single-use systems, the tanks being drained between subsequent programs to minimize cross-contamination.

### Washing Cyclic Operation

The washing process consists of the following sequence: Wash down rinse, Acid wash , Alkaline wash, Wash down, Final wash.

The CIP system is fully automated ,but the washing process can be carried out manually as well. The washing process is controlled via the operation panel of the CIP- unit. The operation panel, the settings for each task / sequence in the washing process can be adjusted such as : Number of tasks / repetitions of tasks, Amount of litres (water, WFI), Dosage of detergents, Temperature of the CIP fluid, Washing pressure, Purge (drainage of process equipment and CIP unit with compressed Air ), total times.

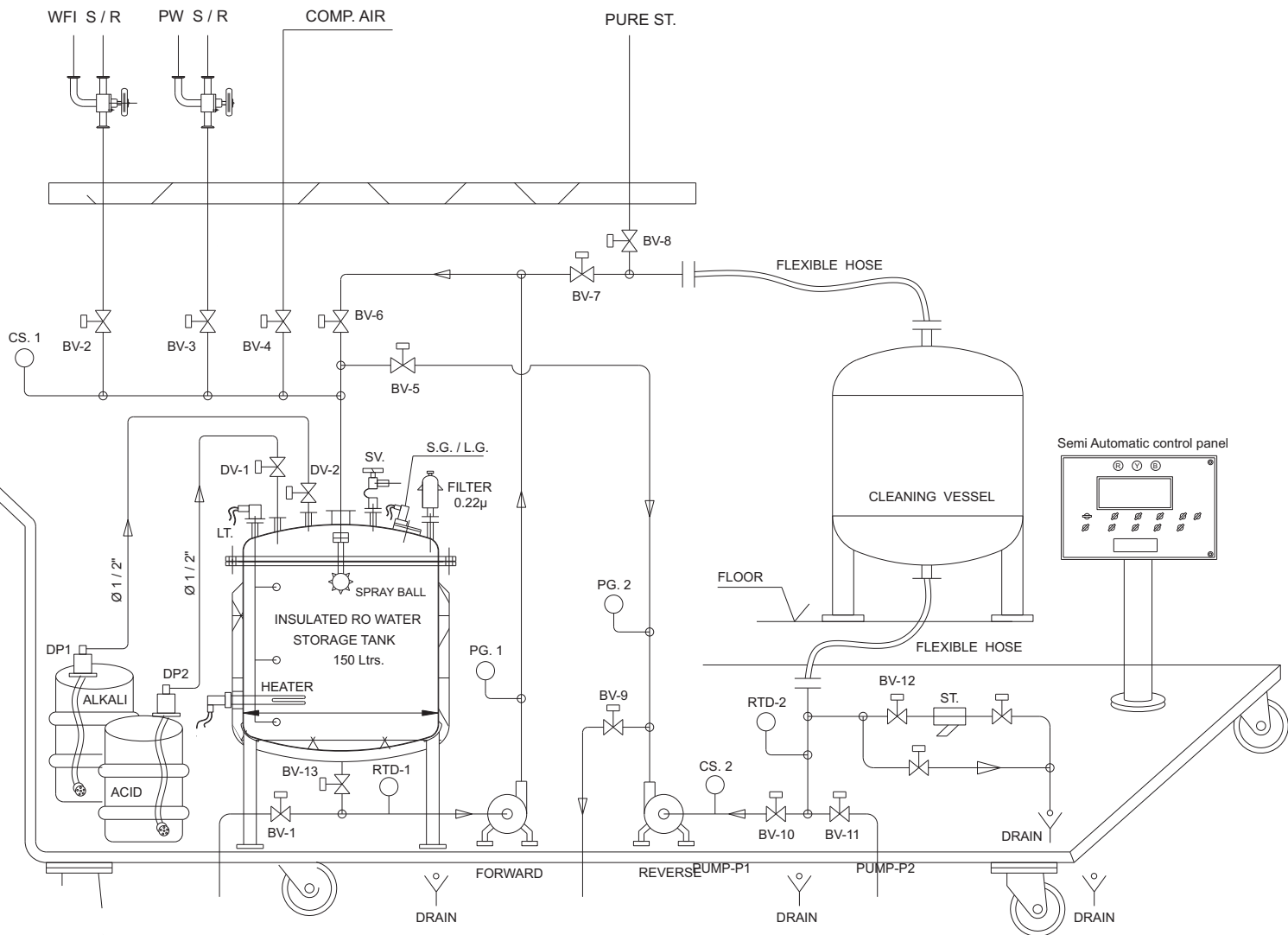
CIP/SIP WITH PLC BASE



LEGEND

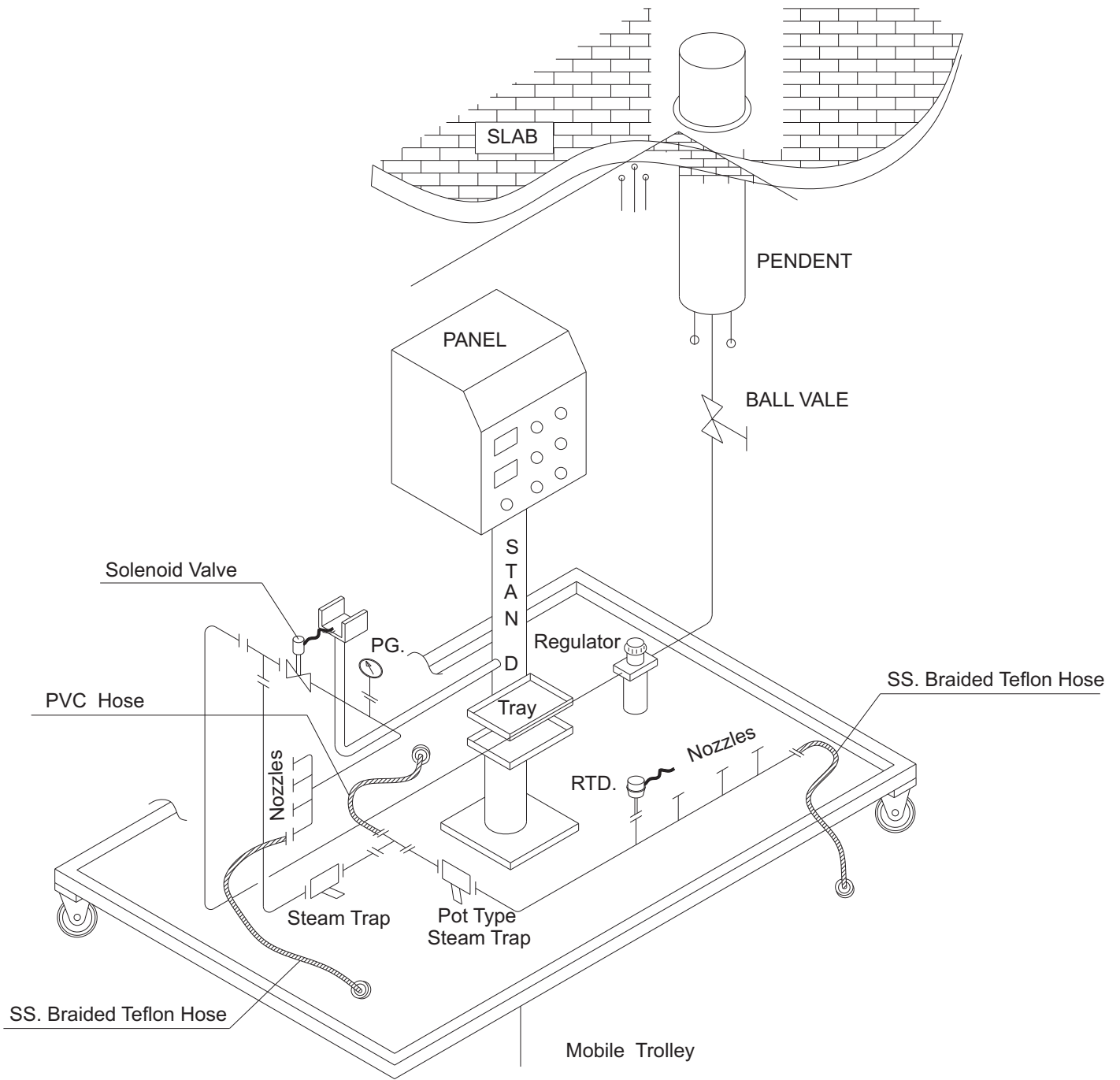
<b>TROLLEY</b> = 2 m. LONG x 0.750 m. WIDTH x 1.6m. HEIGHT	<b>PS</b> = HIGH PRESSURE SWITCH
<b>pH</b> = PH SENSOR	<b>DP1</b> = DOSING PUMP 1 ( ALKALI )
<b>ST</b> = STEAM TRAP	<b>DP2</b> = DOSING PUMP 1 ( ACID )
<b>PG</b> = PRESSURE GAUGE	<b>FDV</b> = FLOW DIVERSIONAL VALVE
<b>CS</b> = CONDUCTIVITY SENSOR	<b>SV</b> = SAFETY VALVE
<b>ST</b> = STEAM TRAP	<b>RTD</b> = TEMP. SENSOR
<b>V1&amp;V2</b> = BUTTER FLY VALVE WITH ACTUATOR	<b>GV</b> = GATE VALVE
<b>SG/LG</b> = SIGHT AND LIGHT GLASS	<b>μ</b> = MICRON
<b>NRV</b> = NON RETURN VALVE	<b>DV</b> =

# CIP/SIP WITH PLC BASE



## LEGEND

BV-1&BV-13 = BUTTER FLY VALVE WITH ACTUATOR	ST = STEAM TRAP	$\mu$ = MICRON	DP1 = DOSING PUMP 1 (ALKALI)
SG/LG = SIGHT AND LIGHT GLASS	PG = PRESSURE GAUGE	DV = DIAPHRAGM VALVE	DP2 = DOSING PUMP 1 (ACID)
NRV = NON RETURN VALVE	CS = CONDUCTIVITY SENSOR	LT = LEVEL TRANSMITTER	SV = SAFETY VALVE
	ST = STEAM TRAP	CA = COMPRESSED AIR	RTD = TEMP. SENSOR
		PS = PURE STEAM	



# SIP SKID