

TYPICAL PROCESS TABLE*

Station	Description	Temp	Dwell
1	Load station (Sensored table).	N/A	N/A
2	Ultrasonic immersion wash, with one sided overflow, 1000 watts ultrasonics (40kHz), 4000 watts Heat, ¾ Hp recirculation pump, recirc 5-7 gpm. 10 micron filter. Auto fill polypro chamber oil coalescer.	50°C	300 sec
3	Ultrasonic immersion wash, with one sided overflow, 4000 watts Heat, 1/8 Hp recirculation pump, 10 micron filter, 5-7 gpm recirc flow. 1000W @ 68kHz U/S. Option to recirculate or pump fluid back to station #2.	50°C	240 sec
4	Ultrasonic immersion rinse, with one sided overflow, 4000 watts Heat. 500 watts @ 68 kHz U/S.		120 sec
5	Ultrasonic immersion rinse, with one sided overflow, 4000 watts Heat.	50°C	240 sec
6	Rust inhibitor station. 4000 watts heat.	50°C	240 sec
7	Pass-Through Air Blow-off Parallel Headers on 12" Sides. Rocking Air Knife also provided near bottom of Dryer Tank. Recirculated Hot Air HEPA Dryer 1100 cfm, 10000 watts Heat.	Ambient 100°C	300 sec
8	Unload station (Sensored table)	N/A	N/A

***Note:** Actual process set up is to be determined by analysis at customer facility.

1.1 SYSTEM OVERVIEW

The workflow is from Left to Right.

The system is constructed of LOAD/UNLOAD table, W/W/R/R/R.I console and DRYER console.

The W/W/R/R/R.I console consists of station #2 (WASH), station #3 (WASH), station #4 (CASCADE RINSE #1), station #5 (CASCADE RINSE #2) and station #6 (RUST INHIBITOR).

Dryer console consists of station #7 (Dryer).

The generators are located near electrical control box on right side of console.

The tanks material is 316 grade stainless steel, with #2B finish.

Please refer to general assembly layout at the end of this manual.

1.2 SPECIFICATIONS

1.2.1 STATION ONE

- The load station is a positioning table with sensors to acknowledge the presence of a parts carrier. The CTS-2000 will at the proper time, pick up the carrier and transport it through the prescribed process.

1.2.2 STATION TWO

Station two is an ultrasonic immersion wash tank. The features of this station include:

- Mechanically attached and thermally coupled, strip type heaters with digital indicating RTD type temperature controller, 4000 watts total.
- Recirculation system utilizing a magnetic drive, totally enclosed fan cooled motor sized at 3/4 HP, stainless steel centrifugal pump assembly. Filtration is accomplished through a nominal 10 micron housed in a 10" stainless steel housing. Flow rate is approximately 5-7 gallons per minute. Flow controls are provided.
- Process fluid is drawn from the drain line and is directed to the suction of the recirculation pump via gravity. The recirculation pump directs effluent through the filter and returns to the tank to reduce thermal stratification and dead areas in the process sump area. This completes the recirculation loop.
- Process tank is with #2B finish.
- Twenty four (24) **Vibra-Bar™** transducers permanently bonded to the tank bottom connected to two (2) 500 watt (average) **Genesis** Ultrasonic generator. Each provided with an independent amplitude power intensity control located on the front panel of the generator case and fixed **Tru-Sweep™** frequency. Operator controls and timer located on control panel. Fixed **Tru-Sweep™** frequency which modulates the base frequency (40 kHz.) ± 1 kHz. is provided to enhance transmission, distribution and consistency of cavitation energy. **Genesis™** ultrasonic generators are provided with constant output capability ($\pm 10\%$) which assures consistent and repeatable power output under widely varying conditions such as flow rate or turbulence (up to 50% of tank volume per minute), liquid level, temperature, mass or loading, density of cleaning media and voltage fluctuation. Refer also to the enclosed bulletin **IM-5310** in the **REFERENCE** section of this manual.
- Internal working dimensions of 16" left to right by 22" front to back by 18 1/2" deep, 14" liquid depth. Working volume of the process sump is approximately 21 1/2" gallons.

1.2 SPECIFICATIONS

- Overflow safety port plumbed to the drain / recirculation line.
- Temperature probe for overtemp safety.
- Exhaust lip vent provided to remove fume / odor.
- Coalescer system included for fluid retrieval.
- Auto fill function provided.
- Liquid level and high temp interlock for ultrasonics, heater and pump.

1.2.3 STATION THREE

Station three is an ultrasonic wash tank. The features of this station include:

- Mechanically attached and thermally coupled, strip type heaters with digital indicating RTD type temperature controller, 4000 watts total.
- Process tank is with #2B.
- Overtemperature safety provided.
- Twenty (24) **Vibra-Bar™** transducers permanently bonded to the tank bottom connected to two (2) 500 watt (average) **Genesis** Ultrasonic generator. It is provided with an independent amplitude power intensity control located on the front panel of the generator case and fixed **Tru-Sweep™** frequency. Operator controls and timer located on control panel. Fixed **Tru-Sweep™** frequency which modulates the base frequency (68 kHz.) ± 1 kHz. is provided to enhance transmission, distribution and consistency of cavitation energy. **Genesis™** ultrasonic generators are provided with constant output capability ($\pm 10\%$) which assures consistent and repeatable power output under widely varying conditions such as flow rate or turbulence (up to 50% of tank volume per minute), liquid level, temperature, mass or loading, density of cleaning media and voltage fluctuation. Refer also to the enclosed bulletin **IM-5310** in the **REFERENCE** section of this manual.
- Liquid level and high temp safety interlock for heat and pump.
- Internal working dimensions of **16"** left to right by **22"** front to back by **18 1/2"** deep, **14"** liquid depth. Working volume of the process sump is approximately **21 1/2** gallons.

1.2 SPECIFICATIONS

- Recirculation system utilizing a magnetic drive, totally enclosed fan cooled motor sized at 3/4HP, stainless steel centrifugal pump assembly. Filtration is accomplished through a nominal 10 micron housed in stainless steel housings. Flow rate is approximately 5-7 gallons per minute. Flow controls are provided.
- This station is equipped with a 3-way valve which allows the recirculated to be pumped either to this station or to station #2.
- Auto fill function provided.

1.2.4 STATION FOUR

Station four is an ultrasonic immersion rinse tank . The features of this station include:

- Process tank is with #2B finish.
- Twenty four (24) **Vibra-Bar™** transducers permanently bonded to the bottom of tank connected to two (2) 500 watt (average) **Genesis** Ultrasonic generators. Each provided with an independent amplitude power intensity control located on the front panel of the generator case and fixed **Tru-Sweep™** frequency. Fixed **Tru-Sweep™** frequency which modulates the base frequency (68 kHz.) ± 1 kHz is provided to enhance transmission, distribution and consistency of cavitation energy. **Genesis™** and **Martin Walter™** ultrasonic generators are provided with constant output capability ($\pm 10\%$) which assures consistent and repeatable power output under widely varying conditions such as flow rate or turbulence (up to 50% of tank volume per minute), liquid level, temperature, mass or loading, density of cleaning media and voltage fluctuation. Refer also to the enclosed bulletin **IM-5310** in the **REFERENCE** section of this manual.
- 4 KW of strip heat.
- Internal working dimensions of 16" left to right by 22" front to back by 17 ½" deep, 14" liquid depth.
- Fluid for this station is cascaded from station five.
- Over flow fluid from this station is plumbed to "closed loop water conservation system" or CLWS.

1.2.5 STATION FIVE

Station five is an immersion rinse tank. The features of this station include :

1.2 SPECIFICATIONS

- Mechanically attached and thermally coupled, 4000 watt strip heaters with digital indicating RTD type temperature controller.
- Process tank is with #2B.
- Overtemperature safety provided.
- Internal working dimensions of **16"** left to right by **22"** front to back by **17 ½"** deep, **14"** liquid depth. Working volume of the process sump is approximately **21** gallons.
- Fluid for this station is cascaded to station # four.
- Liquid level and over temp safety interlock for heat and pump.

1.2.6 STATION SIX

Station six is a rust inhibitor tank. The features of this station include :

- Mechanically attached and thermally coupled, 4000 watt strip heaters with digital indicating RTD type temperature controller.
- Process tank is with #2B.
- Overtemperature safety provided.
- Internal working dimensions of **16"** left to right by **22"** front to back by **18 ½"** deep
Working volume of the process sump is approximately **10** gallons.
- Liquid level and over temp safety interlock for heat.

1.2.7 STATION SEVEN

Station seven is the high efficiency recirculated and heated HEPA dryer console with the following standard features:

- High volume blower assembly, closed loop configuration with make-up and humid air discharge dampers. Approximate volume is 1100-CFM.
- Electric low watt density air heaters with digital indicating RTD type temperature controller, 10000 watts total.

1.2 SPECIFICATIONS

- 0.3 micron HEPA filter installed as part of recirculation.
- Two-sided parallel opposed blow-off headers installed. Air supplied from facility ambient, clean and dry. Compressed air filtration and regulating are provided.
- Swinging air blow-off headers at bottom of dryer provided to increase drying efficiency.
- Automated sliding cover installed, as required for automation interface with material handling system.
- Internal working dimensions of 16" left to right by 22" front to back by 19" deep.
- Differential pressure indicator for HEPA filter.
- Maximum operating temperature of 220° F. (105° C)
- Overtemperature safety control.
- No-flow safety control to cut off heaters when there is no air flow (blower failure).

1.2.8 STATION EIGHT

Unload Station is the receiving station at the end of process.

1.3 PROCESS PLUMBING

The process plumbing of the system is 300 series stainless steel as required with swage type connectors. Standard configuration for connections to the system is stub-outs located at the rear of the console for interconnection to facility.

1.4 CONSTRUCTION

The system base frame and cabinet are constructed of heliarc welded stainless steel tubing and sheet metal. Exterior finish shall be polished as applicable. All stainless steel will be 300 series. Lift out panel are provided with handles for access to the interior of the console(s).

All carbon steel will be suitably coated. Countertop drainbacks and control panels are provided, fabricated from 304 stainless steel with #4 finish. Access panel doors at front are fabricated from 304 stainless steel.

Front lower doors are made of stainless steel.