

# USER MANUAL- ULTRASONIC CLEANER



# Ultrasonic Cleaner Manual

**FOR SUPPORT:**

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# TABLE OF CONTENTS

Chapter No.	Title	Page
<b>CHAPTER 1</b>	<b>INTRODUCTION AND BASICS OF ULTRASONIC CLEANING</b>	<b>3</b>
1.0	Ultrasonic cleaning Overview	3
1.1	Solvents	3
1.2	Pulse Sweep Power Mode	4
1.3	Degassing of Ultrasonic System	4
<b>CHAPTER 2</b>	<b>OPERATION AND MAINTENANCE</b>	<b>5</b>
2.0	Safety Instructions	5
2.1	Operating Panel Layout	6
2.2	Ultrasonic Cleaner Operation	6-7
<b>CHAPTER 3</b>	<b>TECHNICAL SPECIFICATIONS</b>	<b>8</b>
<b>CHAPTER 4</b>	<b>OPERATION FLOW CHART</b>	<b>9</b>

# 1. INTRODUCTION AND BASICS OF ULTRASONIC CLEANING

## 1.0 ULTRASONIC CLEANING OVERVIEW

Ultrasonic cleaning uses **cavitation bubbles** induced by high frequency pressure waves to agitate a liquid. The agitation produces high forces on **contaminants** adhering to substrates like metals, plastics, glass, rubber, and ceramics. This action also penetrates blind\_holes, cracks, and recesses. The intention is to thoroughly remove all traces of contamination tightly adhering or embedded onto solid surfaces.

## 1.1 SOLVENTS

Ultrasonic activity (cavitation) helps the solution to do its job; plain water would not normally be effective. The cleaning solution contains ingredients designed to make ultrasonic cleaning more effective. For example, reduction of surface tension increases cavitation levels, so the solution contains a good wetting agent (surfactant). Aqueous cleaning solutions contain detergents, wetting agents and other components, and have a large influence on the cleaning process. Correct composition of the solution is very dependent upon the item cleaned. Solutions are mostly used warm, at about 50–65 °C (122–149 °F), however, in medical applications it is generally accepted that cleaning should be at temperatures below 45 °C (113 °F) to prevent protein coagulation. Water-based solutions are more limited in their ability to remove contaminants by chemical action alone than solvent solutions; e.g. for delicate parts covered with thick grease. The effort required to design an effective aqueous-cleaning system for a particular purpose is much greater than for a solvent system.

## **1.2 PULSE SWEEP POWER MODE**

In sweep operation, the frequency of the output of the ultrasonic generator is modulated around a central frequency which may itself be adjustable. Various effects are produced by changing the speed and magnitude of the frequency modulation. The frequency may be modulated from once every several seconds to several kilohertz. Sweep may be used to prevent damage to extremely delicate parts or to reduce the effects of standing waves in cleaning tanks. Sweep operation may also be found especially useful in facilitating the cavitation of trepans and petroleum based chemistries. A combination of Pulse and sweep operation may provide even better results when the cavitations of trepans and petroleum based chemistries are required.

## **1.3 DEGASSING OF ULTRASONIC SYSTEM**

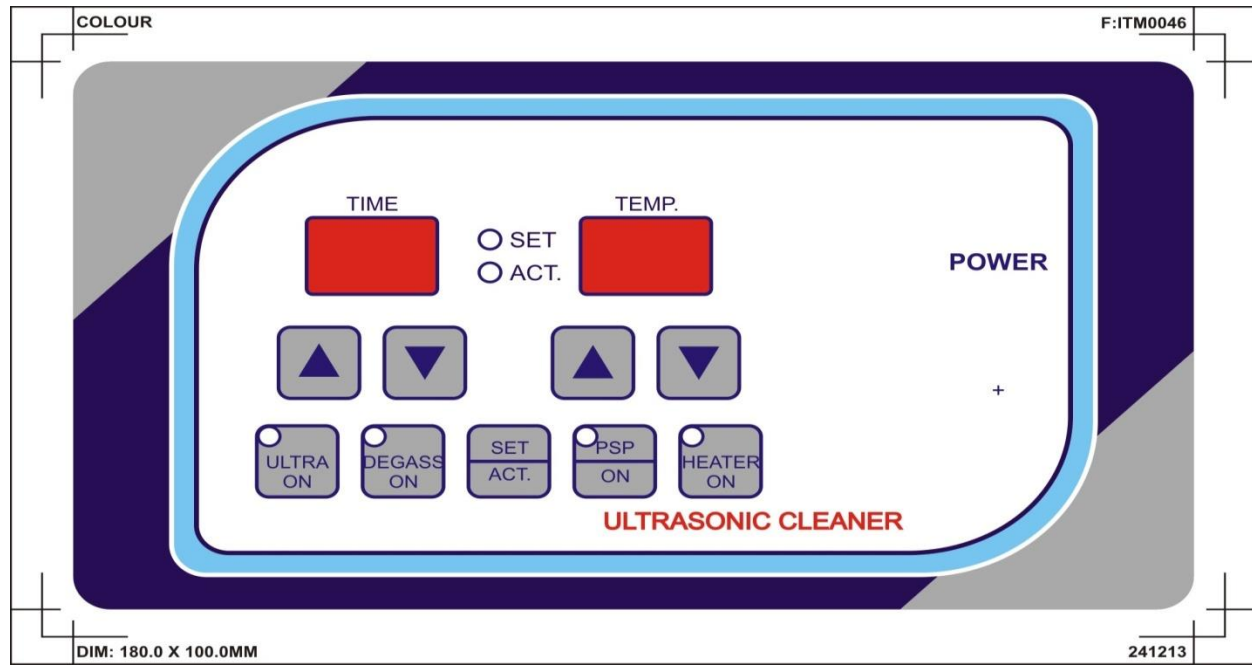
Removing of gases from the cleaning media (Solvent Solution) is normally described as Degassing process. Fresh solutions contain many dissolved gases (usually air), which reduce effective ultrasonic action. Although solution will naturally Degas but this mode speeds up the degassing process. Solution that have been sitting un used for 24 hours or longer have reabsorbed some gases. So initially the degassing process of the ultrasonic media is recommended to obtain the desired cleaning results. And also the degassing mode helps the cleaning chemical should dissolved in the entire media.

## 2. OPERATION AND MAINTENANCE

### 2.0 SAFETY INSTRUCTIONS

- ❖ The Ultrasonic Cleaner must be operated within the range of 230V  $\pm$  10V AC 50 Hz.
- ❖ Ultrasonic Cleaner must be grounded properly before putting into operation.
- ❖ Ensure that the tank is filled completely up to level sensor before operating the Cleaner.
- ❖ Don't put components directly on tank.
- ❖ Wipe the surface of cleaner keypad & enclosure before putting the Cleaner into operation.
- ❖ Empty the tank and clean thoroughly when cleaner is not in use for long time.
- ❖ Do not put or use ice or ice bag in ultrasonic machine.

## **2.1 OPERATING PANEL LAYOUT:**



## **2.2 ULTRASONIC CLEANER OPERATION:**

### **A) DEGASSING MODE OPERATION:**

- ✓ IF Required Degassing mode press the Degass "ON "switch to start Degassing cycle(5min)
- ✓ Press the Degassing switch again if you want to stop Degassing before degassing cycle is over.
- ✓ For repeat cycle press Degassing switch again, after completion of current cycle.

**Note:** During this process your display will show"SE" in Time Display and in Temp Display your Actual temp will be indicating. No other keys will function during this process.

## **B) TIMER SETTING:**

- ✓ Press SET/ACT switch for setting (SET LED ON).
- ✓ Once the machine set for TIME then set the required time (In minutes) by UP<sup>^</sup> & DOWN<sup>∇</sup> Keys below the time display.
- ✓ Your Default time (Factory default) is 5 minutes.

## **C) TEMPERATURE SETTING:**

- ✓ Press SET/ACT switch for setting (SET LED ON).
- ✓ The Cleaner is set for TEMPERATURE then set the required temperature (In Centigrade)
- ✓ Once By UP <sup>^</sup> & DOWN <sup>∇</sup> keys below the temperature display.
- ✓ Now press the HEATER “ON” switch.

## **D) SETTING PSP (PULSE SWEEP POWER):**

- ✓ To operate the state of art “PSP” (PULSE SWEEP POWER) you have to switch “ON “the PSP switch before switching the ULTRA“ON”.

**Note:** Your PSP switch will not operate once you start the ULTRASONIC“ON” switch first.

## **E) ULTRASONIC ON:**

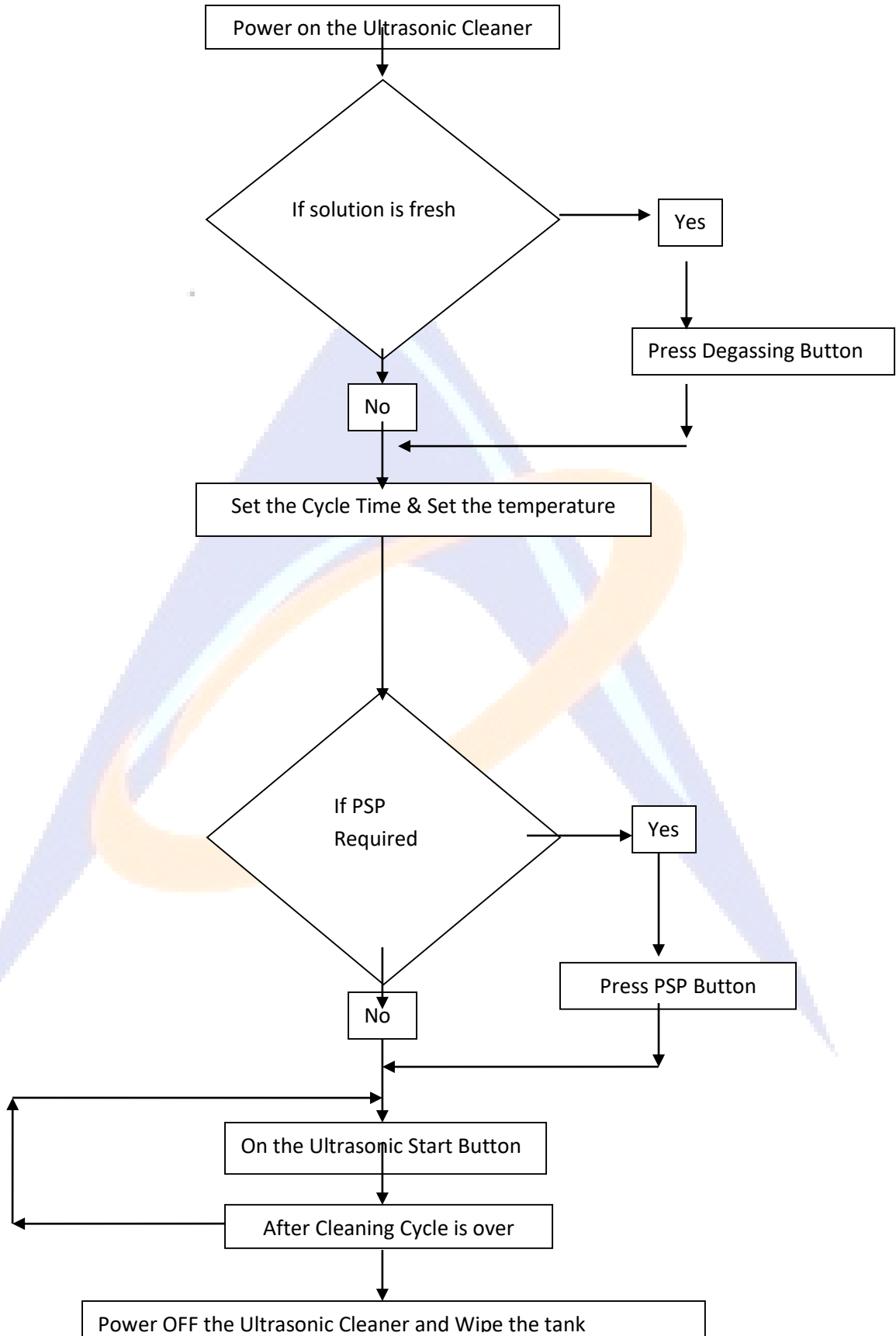
- ✓ After complete setting of your all parameters (TIME/TEMP) you have to switch the ULTRA“ON”.
- ✓ Now your ultrasonic machine will be in “ON” till your settable are achieved.



### 3. TECHNICAL SPECIFICATIONS

<b>Model/ Serial No</b>	Depends on Model selection ( Refer Technical Brochure)
<b>No. of chambers</b>	One
<b>Tank size</b>	Depends on Model selection ( Refer Technical Brochure)
<b>Chamber material</b>	SS 316/ 304
<b>Tank enclosure</b>	SS 304
<b>Basket Material</b>	SS 304
<b>LID Material</b>	SS 304
<b>Total Solvent Capacity</b>	Depends on Model selection ( Refer Technical Brochure)
<b>Power Output ( Ultrasonic)</b>	Depends on Model selection ( Refer Technical Brochure)
<b>Power Input</b>	230VAC $\pm$ 15% 50 Hz
<b>Timer</b>	0-99 min With Digital Display of set & actual.
<b>PSP mode</b>	Available
<b>Frequency</b>	Depends on Model selection ( Refer Technical Brochure)
<b>Heater</b>	Depends on Model selection ( Refer Technical Brochure)
<b>Temperature controller</b>	Digital temperature controller with setting range Ambient to room temperature max 60°C.
<b>Drain</b>	Provided.

#### 4. OPERATION FLOW CHART





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