



# Peripheral Equipment Assembly Guide for LSP-600 Ultrasonic Processor

## Items list, flow-through configuration



#### Main Equipment Items\*:

- 1) Ultrasonic Generator
- 2) Air-Cooled Transducer/Barbell Horn<sup>®</sup> Assembly
- 3) Water-Cooled Reactor Chamber

#### Peripheral Equipment Items:

- 4) Glass Storage/Mixing Vessel ("vessel")
- 5) Stir Plate with Heater ("stir plate")
- 6) Air Blower ("blower")
- 7) Peristaltic Pump ("pump")
- 8) Recirculating Water Chiller ("chiller")

\*Not described in this guide. For further information, see LSP-600 User Manual.

## Included in the vessel box



 Check that all listed parts are in the box and undamaged. Report any issues to <u>ISM</u> as soon as possible.

## Included in the stir plate box



 Check that all listed parts are in the box and undamaged. Report any issues to <u>ISM</u> as soon as possible.

\*Not described in this guide.

## Included in the blower box





1x Large clip for air hose

 Check that all listed parts are in the box and undamaged. Report any issues to <u>ISM</u> as soon as possible.

## Included in the pump box



1x Pump with #36 silicone hose and sanitary flange adapter



1x Return hose assembly



1x Power cable

- Check that all listed parts are in the box and undamaged. Report any issues to <u>ISM</u> as soon as possible.
- The pump ships fully assembled.

## Included in the chiller box



- Check that all listed parts are in the box and undamaged. Report any issues to <u>ISM</u> as soon as possible.
- The chiller ships pre-programmed to the settings required by the LSP-600 ultrasonic processor.



- a. Insert the impeller assembly into the glass bottle until the cap is firmly placed.
- b. The spinner should be close to the bottom of the glass bottle. You can adjust its height by pushing/pulling the shaft through the cap.

## Step 2: Vessel placement & stir plate assembly

#### External thermometer option



- a. Make sure that the shaft of the impeller assembly is centered relative to the stir plate. The vessel itself will not be centered.
- b. Turn on the stir plate and adjust the stirring rate to 500 rpm. Verify that the spinner is rotating on its axis.
- c. Turn off the stir plate.
- d. Insert the temperature probe through the cap and connect it to the stir plate.

<u>CAUTION:</u> Temperature probe should remain inserted at all times while using the heater function. Failure to connect the temperature probe may cause permanent damage to the equipment.

## Step 2: Vessel placement & stir plate assembly Internal thermometer option



- a. Make sure that the shaft of the impeller assembly is centered relative to the stir plate. The vessel itself will not be centered.
- b. Turn on the stir plate on and adjust the stirring rate to 500 rpm.
  Verify that the spinner is rotating on its axis.
- c. Turn off the stir plate.
- d. Connect the temperature plug to the stir plate.

<u>CAUTION:</u> Temperature plug should remain inserted at all times while using the heater function. Failure to connect the temperature plug may cause permanent damage to the equipment.

#### Step 3: Blower placement



- a. Insert the blower handle adapter into the support stand post. You may need to temporarily remove the post cap to do this.
- b. Connect the air hose to the straight hose barb on the transducer lid and secure it with the clip.

#### Step 4: Blower setting



- a. Plug the blower power cable into the speed controller, which should be connected to a 120 Vac outlet.
- b. Adjust blower speed on the speed controller to the lowest setting.

#### Step 5: Chiller lines assembly

<u>WARNING</u>: Do not turn on the chiller without the right amount of water in the reservoir. Ensure that the water level is "normal" as specified on the back of the chiller.





- a. Connect the red hose assembly to the hose barb labeled "INLET" on the back of the chiller and secure it with the clip.
- b. Connect the blue hose assembly to the hose barb labeled"OUTLET" on the back of the chiller and secure it with the clip.

### Step 6: Chiller connections



- a. Attach the quick disconnects on both hose assemblies to the transducer and reactor chamber. The quick disconnects will only fit in correct positions. An audible "click" signals a secure connection.
- b. After filling the chiller's reservoir with water and connecting the hoses as shown above, turn on the chiller. Water should begin flowing immediately.
- c. The temperature of the chiller is pre-set to 15 °C as required by the LSP-600 ultrasonic processor. If you would like to change this temperature or need further information, please refer to the included manufacturer's CW-5200 User Manual.

# Step 7: Pump and liquid recirculation network assembly



- a. Connect the left side of the pump hose to the bottom inlet of the reactor chamber, using the provided sanitary clamp and gasket.
- b. Connect the right side of the pump hose to the barbed bottom outlet of the vessel, secure the hose with the provided plastic clip.
- c. Connect the return hose assembly to the top/side outlet of the reactor chamber using the provided sanitary clamp and gasket.
- d. Insert the other end of the return hose assembly through the hole in the vessel's cap, submerging it in the liquid by about 1 inch.
- e. Verify that all hose clips are secure and all sanitary clamps have been properly tightened (do not overtighten).

<u>CAUTION:</u> Prevent hose rupture by avoiding excessive tension and checking the hose condition inside the pump head before and after each run. Use only the supplied silicone hose.

# Step 7: Pump and liquid recirculation network assembly



- a. During normal operation, the processed liquid is pumped from the bottom outlet of the vessel toward the bottom inlet of the reactor chamber. The light indicator "Left" on the pump's control panel should be on.
- b. During the collection stage (after processing is completed), pull the return hose back through the hole in the vessel's cap a little, such that it is no longer submerged in the processed liquid. The light indicator "Right" on the pump's control panel should be on.

## <u>Step 8: Process liquid flow rate as a</u> <u>function of RPM setting</u>



- Use this chart to determine the flow rate provided by the pump as a function of its RPM setting.
- If you need further information, please refer to the included manufacturer's Precision Pump Manual, M6 Series.