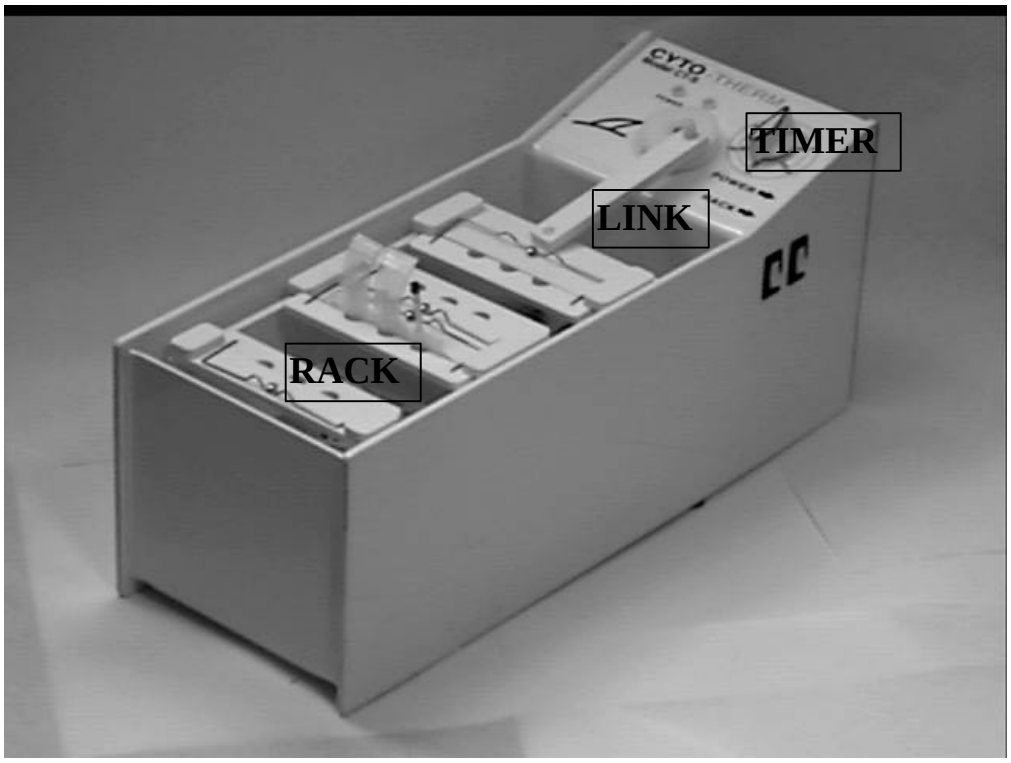
PhotoTherm L.P.

CytoTherm S

PLASMA THAWING WATER BATH

Model **CT-S**

Owners Manual



Warranty

Each PhotoTherm product is produced under rigid quality control standards. This unit is fully warranted for a period of one year from the date of purchase. Call (609) 396-1456 or (800) 747-9699 for help. If necessary send unit to:

PhotoTherm 110 Sewell Avenue Trenton, NJ 08610 Fax (609) 396-9395

Please mail in your warrantee card.
Please record the following: Serial No. _____ Date of Purchase_____

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SPECIFICATIONS

Temperature set to 37^{o} C. 45 C safety thermostat. Accuracy 0.1^{o}C. Power 725 Watt, Available in 120 Volt or 230 Volts, 50 or 60 Hz. (must be grounded).

110 Sewell Ave. Trenton, New Jersey 08610 USA
Telephone 609 396 1456 or 800 747 9699 Fax 609 396 9395 Email serve@cytotherm.com

DESCRIPTION

The PhotoTherm **CytoTherm S** is a recirculating water temperature bath that agitates the plasma using a sliding action. The bags are pushed against bars to stir the plasma inside the bags and speed up the thawing time.

The **CytoTherm S** comes with a **RACK** that will thaw 1 to 4 plasma units (up to 400 ml) at a time. The operator never comes in contact with the water in the bath when handling the plasma. The **RACK** keeps the entry ports of flat-frozen units out of the water so an overwrap bag is not necessary. Folded frozen plasma units require an overwrap bag to protect the entry ports. Both types of freeze methods can be thawed together.

A timer keeps track of the thawing time. **CytoTherm S** comes with a draining siphon and an evaporation cover.

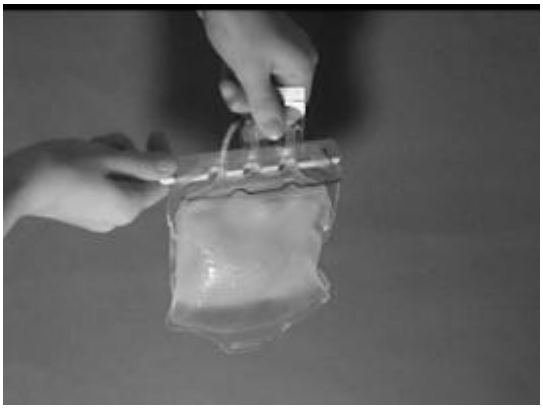
SETTING UP

Fill the **BATH** with tap water to the top of the **SHELF** that supports the **RACK.** If your water contains a lot of lime, use distilled or de-ionized water, add a pinch of salt to make the water conductive so the level sensors will work.

Connect the power cord to the **BATH** and then plug the power cord into a properly grounded electrical outlet. The **CytoTherm S** includes an internal circuit that will not allow the heaters to turn on if the outlet is not properly grounded (see **SAFETY**).

Turn the **POWER** switch **ON**. The pump will start recirculating the water and the heater will turn on. A pilot light indicates when the heater is on. The heater will turn off when the temperature reaches 37^{o}C. The set temperature can be adjusted with an inset potentiometer on the left side of the unit.

OPERATION



Turn the **POWER** switch on. Turn the **RACK** switch off. Wait for the water to heat up to 37^{o} C.

Flat-frozen plasma units can be thawed without an overwrap bag. Hold a bag of flat-frozen plasma (bare or overwrapped) with the tubes up. Slip the **CLAMP** over the top of the bag and line up the grooves in the **CLAMP** with the tubes of the plasma bag.

Push the bottom of the plasma bag into the water, between the stainless rods of the **RACK**. Pull the stainless spring of the **CLAMP** over the screw head in the rack.

Folded frozen plasma must be overwrapped to protect the entry ports. Load it the same way. The **CLAMP** will hold the plasma unit by the overwrap bag.

Overwrap bags 6" wide by 12" long by 2 mil thick are available from Rutan Supply, 39 Siding Pl, Mahwah, NJ
800 872 1474.

The **LINK** bar connects the **RACK** to the rack motor. Place the protruding rod of the **LINK** into the hole on top of the **RACK**. The hole in the **LINK f**its over the protruding rod on the rack motor cam.

Turn the **RACK** switch on.

Rotate the **TIMER** to the estimated thawing time.

When the **TIMER** rings, turn off the **RACK** switch. Pull out the plasma unit from the overwrap bag and examine the plasma unit to make sure the entry ports are dry.

If the entry ports are wet, the plasma unit must be discarded, since the water can contaminate the plasma unit.

Turn the **RACK** switch off, remove the **LINK** and cover the bath with the evaporation cover when plasma is not being thawed. Turn the **POWER** switch off if the **CytoTherm S** will not be used for a while. The **BATH** requires only 15 minutes to raise the temperature from room temperature to 37^{o} C, ready for thawing plasma.

TROUBLESHOOTING

Unit should be opened by qualified technicians only.

Unit is "dead	Verify that you are plugged into a live, grounded outlet. Have qualified technician check if a fuse (on the PC board) is open, or connectors came loose.
Pump is working, but the unit is not heating (HEAT ON lamp is off), even though water temperature is lower than 37°C.	The unit is not properly grounded. Have your outlet checked for grounding and proper polarity. See SAFETY. The unit is not sensing that water is present. a. Make sure you are using tap water or adding salt to deionized water to make it conductive. b. The level sensor (screw 3/4" [2 cm.] above the stainless tube temperature sensor) is dirty. >> Scrape with a coin and wipe with alcohol.
Unit maintains incorrect temperature.	Calibrate against your thermometer, by turning the inset potentiometer on the left side of the unit. Clockwise increases the temperature.
Pump does not circulate, makes humming noise.	With the power off, attach a short piece of tubing to the outlet tubing of the pump and blow into it to clear any obstruction. If this does not work, pump must be replaced.

MAINTENANCE

CLEAN the bath as required. Add algaecide to the water to prevent slime growth. (Cole Palmer 800 323 4340 part #G-08796-00).

Turn the **POWER** switch off. Disconnect the power cord from the **BATH**. Empty the bath by siphoning (siphon pump provided) out the water or lift the whole bath (25 lbs. -12 Kg.) and carry to a sink, empty and rinse out.

Refill with tap water, or if you use de-ionized water, add a pinch of salt.

ONCE A MONTH add a capful of glycerin to the water to lubricate the pump.

PARTS LIST

14-PM	Pump magnetic 120V	**$147.-**	**DP-SW**	Switch power	**$ 10.-**
14-PM2	Pump magnetic 240V	**197.-**	**AF-SW**	Switch rack	**5.-**
C-SPC	Printed circuit board	**110.-**	**C-T**	Safety thermostat 45^{o}C	**33.-**
C-RKM	Rack motor 120V	**50.-**	**C-TMS**	Timer mechanical	**42.-**
C-RKM2	Rack motor 240V	**75.-**	**C-CLM**	Clamp (bag to rack)	**6.-**
C-LINK	Link bar	**25.-**	**C-RAK**	Rack (holds 4 units)	**150.-**
C-ECJ	Evaporation cover	**42.-**	**C-LP**	Lamp, pilot	**5.-**
14-77	Heater	**45.-**	**DB-S**	Temperature sensor	**66.-**

Always specify model and serial number when ordering. Prices subject to change.

SOURCES for SUPPLIES

ALGAECIDE. Cole Palmer (800 323 4340) Part #G-08796-00

BAGS, Overwrap 6” x 12” x 2 mil. Rutan Supply, 39 Siding Pl, Mahwah, NJ 07430
Tel (800 872 1474)

SAFETY FEATURES

GROUND FAULT SAFETY

The **CT-S** will not heat if the unit is not properly (presence and polarity) grounded.

Check the outlet with an AC Volt Meter. The voltage between the Neutral (wide) and the Ground (round) receptacles must be 0 Volts and the voltage between the High (narrow) and Ground (round) receptacles must be 120 VAC.

The neon optocoupler in the ground checking circuit draws about 190 microamps to ground. This is not leakage current, but will show up on standard leakage tests. The filter capacitors in the Radio Frequency Interference Filter (RFI) draw another 110 microamps for a total of 300 microamps which should be deducted from any leakage test results.

The 8 line connector **must be removed** from the board when doing a 1000 Volt isolation test. This connector includes a jumper that disconnects the power to light the neon lamp of the ground checking optocoupler.

WATER LEVEL SENSOR

The unit will not heat if there is not enough water to cover the level sensor, a screw located ¾" (2 cm.) above the temperature sensor. The water must be conductive. Use tap water or add a few salt crystals if you use de-ionized or distilled water.

SAFETY THERMOSTAT

A separate bi-metallic safety thermostat will turn off the heaters if the temperature goes above 45 C.

FUSING

The 2 fuses (1 for high voltage line and 1 for the neutral line) are located on the circuit board. Use a standard 10 Amp AG3 fuse. Correct the cause of the problem before replacing the blown fuse.