

Colloid-Saver™ 3.5 Duplicator

Helps to extend colloid life!

Special Features

- Intelli-Heat™ computer-controlled heating system prevents over-heating and eliminates chunks of colloid
- Altitude setting for precision temperature control
- SmartCycle™ stirring cycle activated only when needed, minimizing colloid breakdown
- High volume, no-drip, no-clog dispensing nozzle
- Pre-set programs for virtually any colloid
- Fully programmable
- Flexible capacity: Use 1 to 3.5 gallons
- USB port for future software upgrades
- Lighted work area with laser sight-line
- Extra large easy-to-fill tank
- Corrosion-proof front panel
- Air-Cooled, no water or drain required
- Optional extension for continuous dispensing

Specifications

Description: Colloid-Saver 3.5 duplicator

Part #: 40811

Capacity: 3.5 Gallons (13.2 Liters)

Electrical: 115 Volt, 60 Hz, 12 Amps

Height: 26" (66 cm)

Width: 17 1/2" (44.5 cm)

Depth: 18 3/4" (47.6 cm)

Weight: 90 Lbs (40.8 Kg)

Shipping Weight: 96 Lbs (43.5 Kg)

Fully Automatic
& Computer Controlled



*Designed & Manufactured
in our Albany, NY Factory*

NOBILIUM™
Ticonium™

Owner's Manual

Congratulations!

You have just purchased a quality piece of CMP Dental Laboratory Equipment. It's quality has been carefully controlled and thoroughly tested for optimum performance and durability.

If you have any questions regarding CMP's quality line of dental laboratory equipment and supplies, please call toll-free: 800-833-2343 or 518-434-3147 (Fax: 518-434-1288) between the hours of 8:00 AM and 4:30 PM Eastern Time. Or, if you prefer, visit us at our web site: www.cmpindustries.com . . . we will be pleased to assist you.

This manual may be available in other languages. Please check our website.

It is important to thoroughly review this manual and test your new duplicator prior to loading with duplicating material.

I. Receiving & Unpacking

We have made every effort to test your equipment and inspect it for damages prior to packing for shipment. However, once the equipment leaves our factory, the shipping company accepts the equipment and the responsibility becomes theirs for its safe and undamaged delivery.

When you unpack your shipment, keep all the packing materials until you are confident that the equipment is in good working condition and functions properly. If there is any concealed damage, the shipping company may need to examine the container when a claim is filed.

If there is damage, the carrier should be contacted as soon as possible. The claim for damages must be filed with the carrier. We are not in a position to assist you with replacement, repair or warranty issues until the carrier has completed their investigation.

If no damage has been found, place the duplicator on a level bench where it will be used. It is best to locate the unit adjacent to the area where the duplicate models will be cooled. Do not block the exhaust fan.

II. Electrical Connection

The Colloid-Saver 3.5 duplicator requires only a standard 115V–60 Hz outlet to operate. Before plugging-in the duplicator, be sure to identify the electrical specifications of the outlet. A dedicated circuit should be used as the Colloid-Saver 3.5 duplicator draws about 12 amps at 115 volts. As with any electrical device, take extra care when handling liquids around electrical

connections to avoid accidental shock. **It is important to carefully read and follow the instructions in the next section prior to actually plugging-in the duplicator.**

III. Testing & Inspection

This is a very important step in the installation of your new Colloid-Saver 3.5 duplicator. Even though your unit was fully tested and inspected before leaving our factory, it may have suffered damage during transit. For this reason the following testing and inspection steps are very important.

Note: *The parts list located in the back of this manual will help in the proper identification of the items described below.*

- 1. DO NOT insert the power cord.**
Remove the rear panel and inspect internal components visually. Look for loose connections and parts.
2. Replace rear panel after inspection.
3. Remove the top cover by rotating it clockwise and check inside the tank to be sure there are no interferences with the stirrer. Make sure stirrer knob is tight.
4. Replace top cover and rotate it counter-clockwise to engage it with the locking pins in the tank. Make sure cover handle is facing forward.
5. Check to be sure the duplicator's identification plate voltage agrees with the electrical voltage of the outlet. If unsure, test voltage or contact a qualified electrician. If these two items are compatible, plug duplicator into the electrical outlet.

Note: *The Colloid-Saver 3.5 duplicator (115V) draws about 12 amps and should be on its own dedicated circuit.*

6. Flip the main power switch to the **On (I)** position. The main power switch is located on the right side of the unit, adjacent to the electrical cord (Figure A).



(Figure A)

7. Press the red **POWER** button located on the front display panel to start the duplicator (Figure C).

The display panel should illuminate and shows the PROCESS temperature (actual temperature reading of the tank) and the hold temperature SET POINT. The unit is now in “Standby Mode” (no heating lights illuminated).

8. The Colloid-Saver 3.5 duplicator has been pre-programmed for use with Nobilium, Ticonium or Niranium colloids at sea level. **If the duplicator will not be used at sea level, or other colloids will be used, you must make setting adjustments as shown in section VI.**

IV. Colloid Loading & Cook-Down

1. Remove the top cover by rotating it clockwise, then fill duplicator with 1 to 3 ½ gallons (4 to 13 liters) of colloid material.

Note: Colloid material must be chopped into small (2 to 5 cm) chunks. Using larger chunks of material may cause the stirrer mechanism to fail.

Do not fill the tank more than 3/4 full initially. To maximize the volume of material in the tank, wait 5 minutes after cook-down begins, then remove the top cover and add remaining material until the tank is full. Make sure to add any liquid that may be in the bottom of colloid container. The liquid contains ingredients which extend the life

of the colloid. Replace top cover and rotate it counter-clockwise to engage it with the locking pins in the tank (Figure B). As a safety measure, the top cover must be fully rotated into a locked position (Figure B) before the motor will function.



2. Press the **ENTER** button on the front display panel. (The display will indicate “Cook”).

3. Press the V arrow once (the display will indicate “Hold”). Select either cook or hold and press the **ENTER** button.

4. The stirring motor will start and the display panel will indicate the PROCESS temperature (actual temperature reading of the tank) and the cook-down temperature SET POINT.

5. All three heating lights will illuminate. Heating will continue until the cook-down temperature is reached. Then the duplicator fan will activate until the unit reaches the hold temperature. This cook-down process takes 2 to 3 hours. (To suspend or restart the cook-down process, press the **ENTER** button).

6. The material is ready when the controller display blinks “READY” (Figure C) and an audible “beep” sounds. Turn off the audible “beep” by pressing the **SET** button.

Note: The ready display and sound can be turned off in the profile setup.

V. Operation

Cook-Down

It is best to cook-down in late afternoon. This allows the cool-down cycle to occur in the evening when the duplicator is not in use.

Colloid Storage

Please follow these procedures when storing used material that will be re-melted.

1. After removing the colloid from the duplicating flask, rinse with water to remove any foreign material clinging to the colloid. Pieces of gypsum or investment that remain in the colloid can permanently damage the tank and/or stirrer, as they will be dragged around inside the tank during the cook-down cycle.

2. Gently shake-off excess water.

3. Store colloid in a clean, covered container. Keep container covered so moisture is not lost.

4. When ready to cook-down, **cut colloid molds in quarters**, then load duplicator.

5. If re-melted colloid is difficult to dispense due to high viscosity, add small amounts of water until the viscosity is reduced.

Changing Duplicating Material

When the tank is virtually empty, press the red **POWER** button on the front panel to turn-off the duplicator. To remove the colloid at the very bottom of the tank, simply allow it to cool then peel it out.

Preventive Maintenance & Cleaning

1. Clean Colloid-Saver 3.5 duplicator approximately once a month or when new duplicating material is added. Your frequency of cleaning may vary with usage. Scrub inside wall of tank and cover assembly with a non-abrasive pot scrubber.

2. Inspect stirrer for wear and distortion. Clean with non-abrasive pot scrubber.

3. Remove back panel and inspect the bearing. If any colloid is leaking from this area, the bearing must be replaced.

4. Be very careful not to spill liquids on the duplicator! Liquids can damage the control panel and circuit boards. If a spill occurs, unplug the duplicator immediately and clean thoroughly.

5. Clean fan air filter regularly to maintain proper air flow.

Calibration

Calibration of the Colloid-Saver 3.5 duplicator is not necessary. The computer controller is self-calibrating.

Continuous Dispensing (Emptying)

The Colloid-Saver 3.5 duplicator can be used to fill flasks in a continuous line using the optional Dispensing Extender shown in (Figure D).



(Figure D)

Power Supply Interruption

In the event of a power interruption (example: electrical outage due to weather), the computer-controller will remember the heating cycle and will continue with the same cycle if the power supply comes back online within 15 minutes. If the colloid material is not solid, start a normal cook-down cycle by turning the unit on and pressing the **ENTER** button. If the power supply is off for more than 15 minutes and the colloid material is completely solid, select the cold start cook-down cycle by following these steps: With the power on, press the **SET** button then the “√” button then the **SET** button twice (display will flash “DONE”), then press **ENTER** twice.

VI. Settings

The factory default profile “A” is set-up for Nobilium, Ticonium or Niranium colloid products used at sea level. If the duplicator will not be used at sea-level, the altitude setting must be adjusted. Failure to set the Altitude could cause the duplicator to deliver poor quality colloid.

Select Pre-Programmed Setting

If not using Nobilium, Ticonium or Niranium colloid products, review the requirements of the duplicating material to be used and match them to one of the pre-programmed profile settings below. To select a specific profile, the duplicator must be in “Standby

Mode” (power on but no heating lights illuminated). Press the **SET** button twice. The display will show the first option on the settings menu which is the present profile. Press the “^” (UP) button to find the profile to be changed. Press the **SET** button again to select the profile. Press the **ENTER** button to exit the settings menu.

Develop Custom Settings

If none of the pre-programmed settings match the requirements of the duplicating material, then develop a custom profile. To develop custom profile settings, the duplicator must be in “Standby Mode” (power on but no heating lights illuminated). Press the **SET** button once. Then press the “^” button to find the attribute to be changed. When the desired attribute is displayed, press the **SET** button to select it. Then press the “^” or “√” button to change the setting. Press the **SET** button to confirm the change. Press the **ENTER** button to exit the settings menu. The attribute setting options are presented below along with their maximum and minimum values.

To reset the duplicator to factory defaults, scroll through the menu options until the display reads “SET DEF.” Press the **SET** button to return all settings to factory default settings and “DONE” will be displayed. To abort changes, press the Enter button to re-enter the “Stanby Mode.” Other attributes (KP, KI, KD) cannot be edited.

Attributes							
Display	Stirrer “STR”	Ready “RDY”	Cook-Down Temp. “SCT”	Hold Temp. “SHT”	Cook Dwell “SCD”	F° or C° “DEG”	Altitude “ALT”
PROFILE A*	15-100%	On/Off	199°F (93°C)	133°F (56°C)	30 mins.	F°	0 “Sea Level”
PROFILE B	15-100%	On/Off	207°F (97°C)	131°F (55°C)	30 mins.	F°	0 “Sea Level”
PROFILE C	15-100%	On/Off	204°F (96°C)	134°F (57°C)	20 mins.	F°	0 “Sea Level”
PROFILE D	15-100%	On/Off	207°F (97°C)	131°F (55°C)	15 mins.	F°	0 “Sea Level”
Max.	100%	On/Off	207°F or (97°C)	140°F or 60°C	60 Minutes	F°/C°	+255' x 100 (+ 25,500')
Min.	15%	On/Off	190°F or (88°C)	125°F or 52°C	1 Minute	F°/C°	- 14' x 100 (- 1,400')

* Default settings

If manufacturer-recommended specifications for the colloid to be used are unavailable, follow these steps:

1. Cook-Down Temperature – Select a profile and edit the cook-down temperature as described on page 6. Start with Cook-Down temperature of 200°F (93°C). If the colloid is fully melted after 30 minutes, then reduce the next cook-down temperature by increments of 2°F (1°C). Continue the process until the colloid is not fully melted. Use the lowest cook-down temperature that will yield usable material in order to maximize colloid life.

2. Hold Temperature – Select a profile and edit the hold temperature as described on page 6. Start with a Hold Temperature of 140°F (60°C) then gradually lower the hold temperature as performed above. Use the lowest hold temperature that will yield usable material in order to maximize colloid life.

VII. Troubleshooting

1. Colloid-Saver 3.5 duplicator will not turn on.

A. Check wall outlet for power.

B. Check if power cord is connected to duplicator.

C. Check if the main power supply is turned to the **On** (O) position.

D. Check if back panel is secure.

E. Check 15 amp circuit breaker on right side rear. (Press to reset)

2. Duplicator front panel display is working, but duplicator does not heat.

A. Check heater connections on terminal board, relay & controller.

3. Motor will not run.

A. Check 1 amp circuit breaker on right side rear. (Press to reset)

B. Check top cover. It must be fully rotated into a locked position.

C. Check motor connections on terminal board, relay & controller.

4. Fan does not turn on.

A. Check fan connections on terminal board, relay & controller.

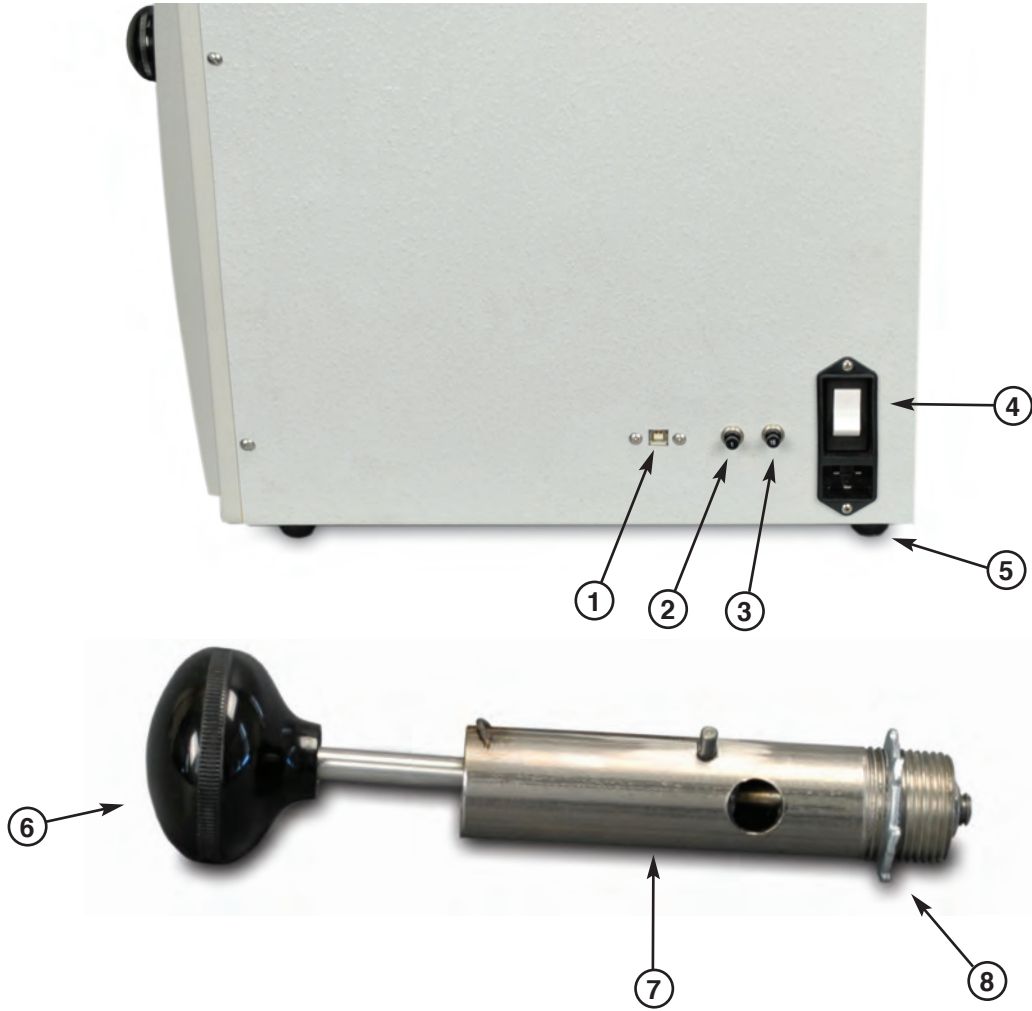
5. Top cover will not open.

A. Top cover is designed to resist opening during the advanced stage of the cook-down cycle. This is a safety measure to prevent the addition of colloid during the advanced stages of the cook-down cycle which may result in splash of hot colloid material.



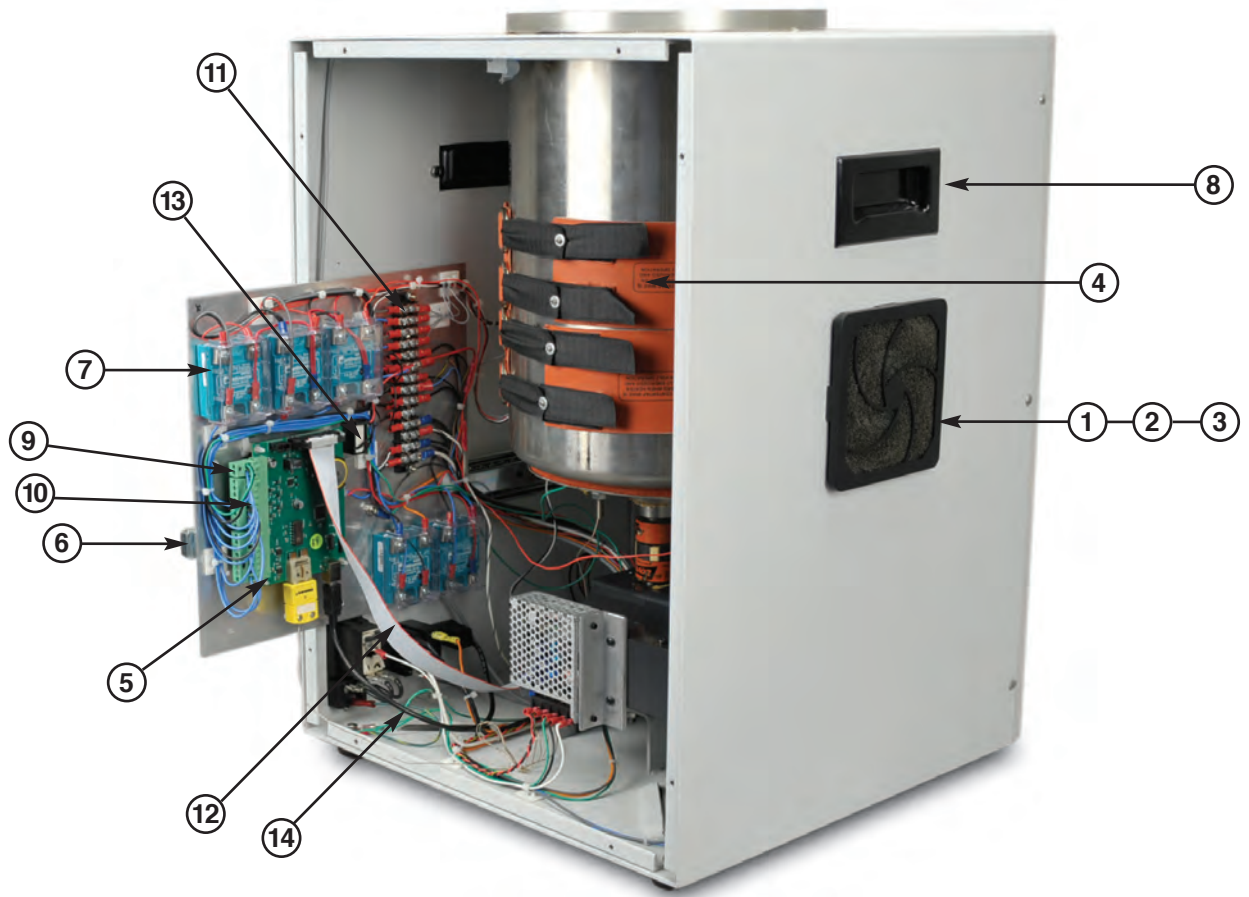
Front View with Top Cover

ITEM & DESCRIPTION	PART NUMBER
1. Front Panel Control	40811P37
2. Precision Laser	40811P48
3. LED Light	40811P38
4. Power Entry Module	40811P20
5. Cover Lock	40811P44
6. Poly Cover	40811P1
7. Cover Interlock	40811P45
8. Cover Handle	40811P43
9. Power Cord Assembly	40811P61
10. Mold Form Front Panel	40811P27



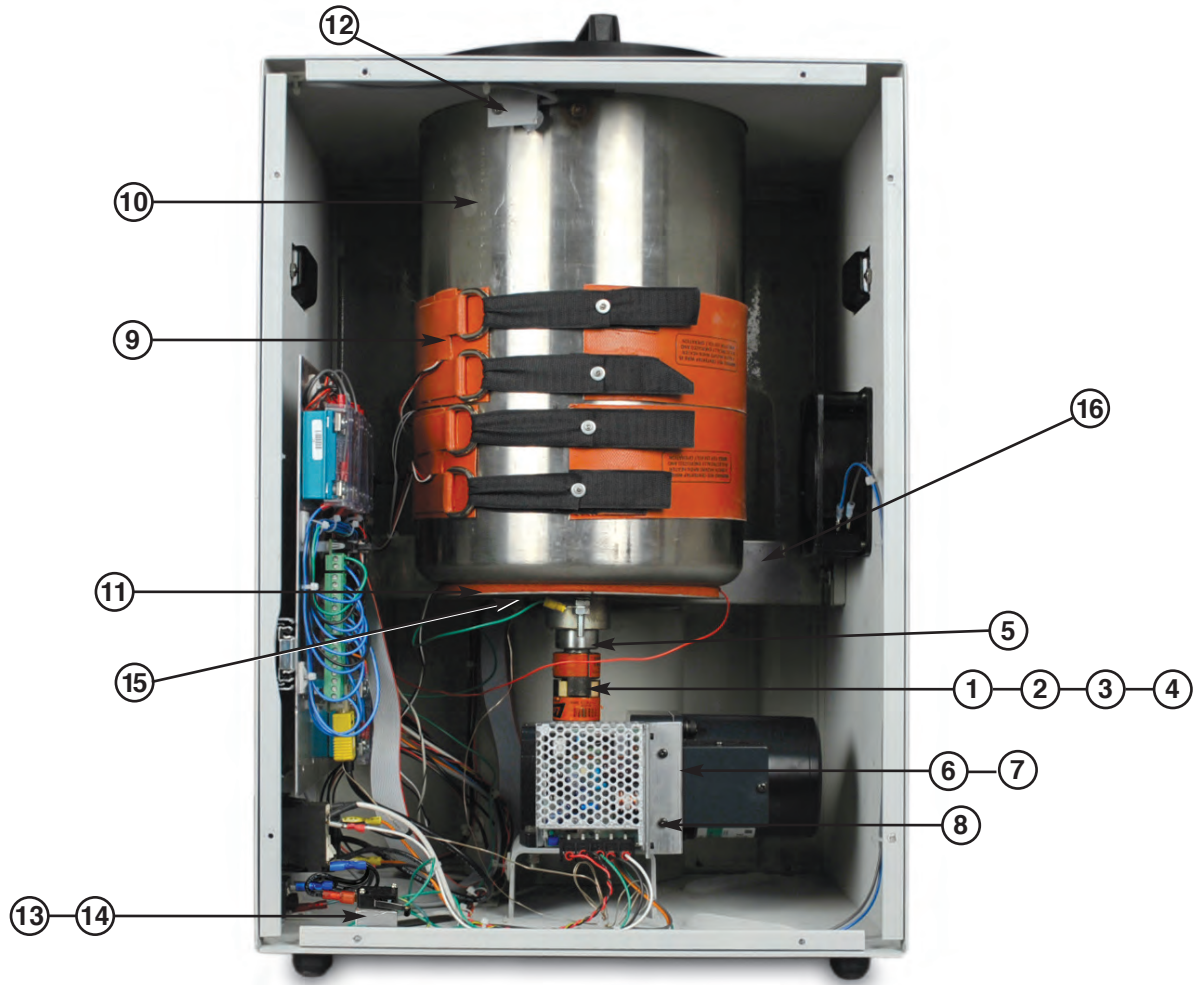
Side View & Valve

ITEM & DESCRIPTION	PART NUMBER
1. USB Port Connector	40811P39
2. 1 Amp Motor Circuit Breaker	65383P7
3. 15 Amp Main Breaker	65383P6
4. Power Entry Module	40811P20
5. Rubber Feet	40811P19
6. Knob	40811P2
7. Valve Body	40811P7
8. Locking Nut	40811P11



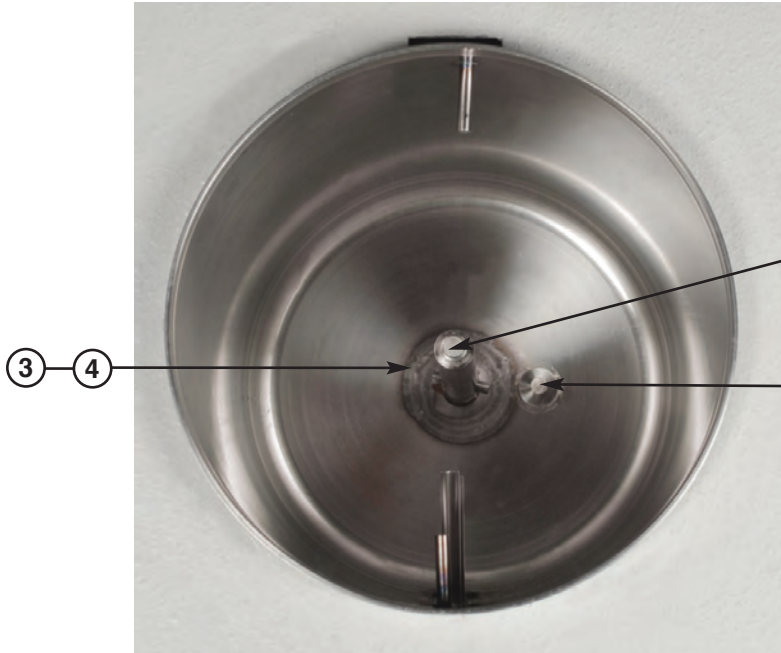
Inside View (Side)

ITEM & DESCRIPTION	PART NUMBER
1. Fan	36081R
2. Fan Guard	40811P22
3. Fan Air Filter	40811P22A
4. Side Heater	40811P33
5. Controller	40811P34
6. Drawer Slide	40811P12
7. Solid State Relay	41984P18
8. Handle	40811P26
9. 2-Pin Connector	40811P51
10. 8-Pin Connector (X2)	40811P50
11. 14-Pin Terminal Block	40811P52
12. Flat Cable	40811P53
13. Relay 5V	40811P49
14. USB Port Connector	40811P39

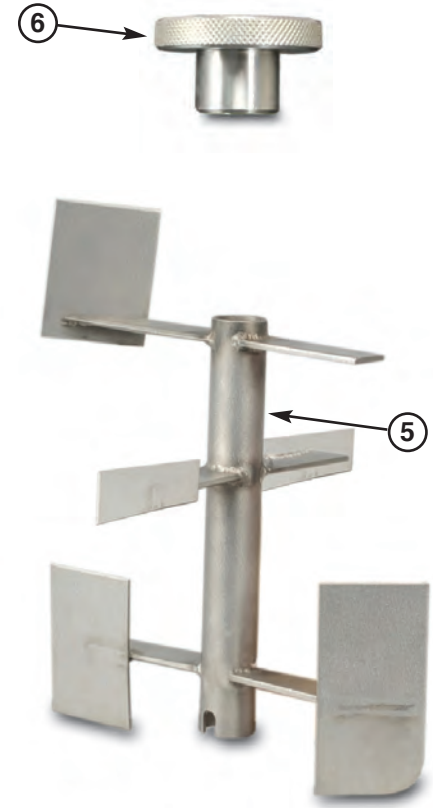


Inside View (Back)

ITEM & DESCRIPTION	PART NUMBER
1. Coupling Hub 5/8	40811P23
2. Coupling Hub 3/4	40811P24
3. Coupling Spider	40811P25
4. Keyed Drive Shaft	40811P30
5. Shaft Collar	40811P35
6. Motor	40811P31
7. Gearhead	40811P31A
8. Power Supply	40811P40
9. Thermistors 120C	40811P28
10. Tank Assembly	40811G3
11. Bottom Heater	4081132
12. Cover Interlock Bracket	40811P46
13. Panel Safety Switch	40811P47
14. Panel Safety Switch Bracket	40811P60
15. Bottom Heater Bracket	40811P17
16. Tank Support Bracket	40811P36



Inside View of Tank



Inside Tank & Stirrer

ITEM & DESCRIPTION	PART NUMBER
1. Thermocouple K-Type	10980
2. Main Shaft	40811P13
3. Bearing	40811P29
4. Seal	40811P41
5. Stirrer Assembly	40811G2
6. Stirrer Knob	40811P18



Accessories

ITEM & DESCRIPTION	PART NUMBER
1. Dispensing Extender	40811P58



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