Fisher Scientific

Isotemp Stirring Hot Plates

OPERATION MANUAL
AND PARTS LIST

CIC0000811• 03/09/15

This manual covers the models shown below

Model	Voltage	Description
HP88854200	100-120V	4x4 Ceramic Hot Plate
HP88854205	220-240V-EU	4x4 Ceramic Hot Plate
HP88854206	220-240V-AUS/CHN	4x4 Ceramic Hot Plate
S88854200	100-120V	4x4 Ceramic Stirrer
S88854205	220-240V-EU	4x4 Ceramic Stirrer
S88854206	220-240V-AUS/CHN	4x4 Ceramic Stirrer
SP88854200	100-120V	4x4 Ceramic Stirring Hotplate
SP88854205	220-240V-EU	4x4 Ceramic Stirring Hotplate
SP88854206	220-240V-AUS/CHN	4x4 Ceramic Stirring Hotplate
HP88857200	100-120V	7x7 Ceramic Hot Plate
HP88857205	220-240V-EU	7x7 Ceramic Hot Plate
HP88857206	220-240V-AUS/CHN	7x7 Ceramic Hot Plate
S88857200	100-120V	7x7 Ceramic Stirrer
S88857205	220-240V-EU	7x7 Ceramic Stirrer
S88857206	220-240V-AUS/CHN	7x7 Ceramic Stirrer
SP88857200	100-120V	7x7 Ceramic Stirring Hotplate
SP88857205	220-240V-EU	7x7 Ceramic Stirring Hotplate
SP88857206	220-240V-AUS/CHN	7x7 Ceramic Stirring Hotplate
HP88857204	100-120V	7x7 Aluminum Hot Plate
HP88857208	220-240V-EU	7x7 Aluminum Hot Plate
HP88857209	220-240V-AUS/CHN	7x7 Aluminum Hot Plate
S88857204	100-120V	7x7 Aluminum Stirrer
S88857208	220-240V-EU	7x7 Aluminum Stirrer
S88857209	220-240V-AUS/CHN	7x7 Aluminum Stirrer
SP88857204	100-120V	7x7 Aluminum Stirring Hotplate
SP88857208	220-240V-EU	7x7 Aluminum Stirring Hotplate
SP88857209	220-240V-AUS/CHN	7x7 Aluminum Stirring Hotplate
HP88850200	100-120V	10x10 Ceramic Hot Plate
HP88850205	220-240V-EU	10x10 Ceramic Hot Plate
HP88850206	220-240V-AUS/CHN	10x10 Ceramic Hot Plate
S88850200	100-120V	10x10 Ceramic Stirrer
S88850205	220-240V-EU	10x10 Ceramic Stirrer
S88850206	220-240V-AUS/CHN	10x10 Ceramic Stirrer
SP88850200	100-120V	10x10 Ceramic Stirring Hotplate
SP88850205	220-240V-EU	10x10 Ceramic Stirring Hotplate
SP88850206	220-240V-AUS/CHN	10x10 Ceramic Stirring Hotplate

Important Before using this product, read this entire operation manual carefully. Users should follow all of the operational guidelines contained in this manual and take all necessary safety precautions while using this product. Failure to follow these guidelines could result in potentially irreparable bodily harm and/or property damage.

Caution all internal adjustments and maintenance must be performed by qualified service personnel.

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MANUAL NUMBER CIC0000811

REV	ECR/ECN	DATE	DESCRIPTION	By
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Table of Contents

Safety Information

Alert Signals

Warning
Warnings alert you to a possibility of personal injury.

Caution
Cautions alert you to a possibility of damage to the equipment.

Note
Notes alert you to pertinent facts and conditions.

Hot Surface
Hot surfaces alert you to a possibility of personal injury if you come in contact with a surface during use or for a period of time after use.

Your Thermo Scientific Isotemp Hot Plate, Stirrer or Stirring Hot Plate has been designed with function, reliability, and safety in mind. It is your responsibility to install it in conformance with local electrical codes. For safe operation, please pay attention to the alert signals throughout the manual.

Warning: These products should be used only under the operating conditions specified in the Operating Manual. Always use safe laboratory practices and do not leave the hotplate in operation while unattended as product functionality or laboratory practice failures could occur that might lead to uncontrolled or excessive heating of the top surface. Safety procedures (including, but not limited to, unplugging when not in use) and response plans should be put in place to address the worst case possibility. If an over-temperature failure occurs, the top surface temperature could rise to the maximum temperature (300-540°C depending on your model's specification) and remain at that temperature indefinitely. Under these conditions, the material being heated on the surface of the hotplate could reach levels in excess of the maximum temperature.

This manual contains important operating and safety information. The user must carefully read and understand the contents of this manual prior to the use of this equipment.

Warnings

To avoid electrical shock, always:

1. Use a properly grounded electrical outlet of correct voltage and current handling capacity.
2. Disconnect from the power supply prior to maintenance and servicing.

Safety Information

To avoid personal injury:

1. Do not use in the presence of flammable or combustible materials — fire or explosion may result. This device contains components which may ignite such materials. Not rated for use in hazardous atmospheres.
2. Use caution when heating volatile materials; top surface and element can reach the "Flash Point Temperature" of many chemicals. These hot plates are not explosion proof. Fire or explosion may result. Unit contains components which may ignite such materials.
3. Keep top surface clean. Use a non-abrasive cleaner. Alkali spills, hydrofluoric acid spills or phosphoric acid spills may damage top and lead to thermal failure. Unplug unit and remove spills promptly. Do not immerse unit for cleaning.
4. Replace the top immediately if damaged by etching, scratching or chipping. A damaged top can break in use.
5. Do not use metal foil on hot plate which may block air flow. Overheating will result.
6. Check and tighten the removable cord periodically making sure it is secure. If loosened, the cord could become hot and/or spark and be a potential fire hazard. If cord appears damaged, replace immediately. If cord is repeatedly loosened it is recommended to purchase the power entry module (part number CIC0000793 or CIC0000469 depend on models) listed in the Replacement Parts section of this manual.
7. Do not remove or modify grounded power plug. Use only properly grounded outlets to avoid shock hazard.
8. Use appropriate hand and eye protection when handling hazardous chemicals.
9. Gross weight of items placed on top of hot plates should not exceed 35 lbs. (15.9 kg.) on the 10" x 10" models, 25 lbs. (11.3 kg) on the 7" x 7" models and 15 lbs. (6.8 kg) on the 4" x 4" models.
10. "Caution: Hot Top. Avoid Contact." The top plate of the unit can remain hot for some time after use. A "CAUTION - HOT TOP" light will remain on until top plate temperature cools to below 50°C.
11. Do not leave an active probe out of the fluid. This may cause uncontrolled heating of the fluid on the hot plate and unintentional boiling or an explosion could occur.
12. Localized heater element temperature can be significantly higher than the temperature indicated on the display. If flammable concentrations reach internal element, a fire could result.
13. Note that the exterior housing will be hot during and for a period of time after use.
14. Refer servicing to qualified personnel.

Specifications

Ceramic Hot Plate Specifications

Overall Dimensions	HP88854200	HP88854205	HP88854206	HP88857200	HP88857205	HP88857205
Width - in.(cm)	5.1 (13)	5.1 (13)	5.1 (13)	8.2 (20.8)	8.2 (20.8)	8.2 (20.8)
Height - in.(cm)	3.9 (9.8)	3.9 (9.8)	3.9 (9.8)	4.1 (10.5)	4.1 (10.5)	4.1 (10.5)
Depth - in.(cm)	10.2 (25.9)	10.2 (25.9)	10.2 (25.9)	14.2(36)	14.2(36)	14.2(36)
Weight - lbs.(kg)	3.3 (1.5)	3.3 (1.5)	3.3 (1.5)	7.5 (3.4)	7.5 (3.4)	7.5 (3.4)
Top Plate Dimensions						
Width - in.(cm)	4.25 (10.8)	4.25 (10.8)	4.25 (10.8)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Height - in.(cm)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)
Depth - in.(cm)	4.25 (10.8)	4.25 (10.8)	4.25 (10.8)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Volts	100-120	220-240	220-240	100-120	220-240	220-240
Amps	4.4	1.6	1.6	12	4.4	4.4
Watts	540	384	384	1440	1056	1056
Freq.	50/60	50/60	50/60	50/60	50/60	50/60
Phase	1	1	1	1	1	1
Max. Temp °C (°F)	540°C(1004°F)	540°C(1004°F)	540°C(1004°F)	540°C(1004°F)	540°C(1004°F)	540°C(1004°F)

Overall Dimensions	HP88850200	HP88850205	HP88850206
Width - in. (cm)	11.3 (28.8)	11.3 (28.8)	11.3 (28.8)
Height - in. (cm)	4.1 (10.5)	4.1 (10.5)	4.1 (10.5)
Depth - in. (cm)	17.2 (43.8)	17.2 (43.8)	17.2 (43.8)
Weight - lbs. (kg)	11.5 (5.2)	11.5 (5.2)	11.5 (5.2)
Top Plate Dimensions			
Width - in. (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Height - in. (cm)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)
Depth - in. (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Volts	100-120	220-240	220-240
Amps	13	6.0	6.0
Watts	1560	1440	1440
Freq.	50/60	50/60	50/60
Phase	1	1	1
Max. Temp °C (°F)	400°C(752°F)	400°C(752°F)	400°C(752°F)

Ceramic Stirrer Specifications

Overall Dimensions	S88854200	S88854205	S88854206	S88857200	S88857205	S88857206
Width - in. (cm)	5.1 (13)	5.1 (13)	5.1 (13)	8.2 (20.8)	8.2 (20.8)	8.2 (20.8)
Height - in. (cm)	3.9 (9.8)	3.9 (9.8)	3.9 (9.8)	4.1(10.5)	4.1(10.5)	4.1(10.5)
Depth - in. (cm)	10.2 (25.9)	10.2 (25.9)	10.2 (25.9)	14.2 (36)	14.2 (36)	14.2 (36)
Weight - lbs. (kg)	5.0 (2.2)	5.0 (2.2)	5.0 (2.2)	9.0 (4.1)	9.0 (4.1)	9.0 (4.1)
Top Plate Dimensions						
Width - in. (cm)	4.25 (10.8)	4.25 (10.8)	4.25 (10.8)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Height - in. (cm)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)
Depth - in. (cm)	4.25 (10.8)	4.25 (10.8)	4.25 (10.8)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Volts	100-120	220-240	220-240	100-120	220-240	220-240
Amps	0.2	0.1	0.1	0.2	0.1	0.1
Watts	24	24	24	24	24	24
Freq.	50/60	50/60	50/60	50/60	50/60	50/60
Phase	1	1	1	1	1	1

Overall Dimensions	S88850200	S88850205	S88850206
Width - in. (cm)	5.1 (13)	5.1 (13)	5.1 (13)
Height - in. (cm)	4.1(10.5)	4.1(10.5)	4.1(10.5)
Depth - in. (cm)	17.2 (43.8)	17.2 (43.8)	17.2 (43.8)
Weight - lbs. (kg)	13.0 (5.9)	13.0 (5.9)	13.0 (5.9)
Top Plate Dimensions			
Width - in. (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Height - in. (cm)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)
Depth - in. (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Volts	100-120	220-240	220-240
Amps	0.2	0.1	0.1
Watts	24	24	24
Freq.	50/60	50/60	50/60
Phase	1	1	1

Ceramic Stirring Hotplate Specifications

Overall Dimensions	SP88854200	SP88854205	SP88854206	SP88857200	SP88857205	SP88857206
Width - in. (cm)	5.1 (13)	5.1 (13)	5.1 (13)	8.2 (20.8)	8.2 (20.8)	8.2 (20.8)
Height - in. (cm)	3.9(9.8)	3.9(9.8)	3.9(9.8)	4.1(10.5)	4.1(10.5)	4.1(10.5)
Depth - in. (cm)	10.2 (25.9)	10.2 (25.9)	10.2 (25.9)	14.2 (36)	14.2 (36)	14.2 (36)
Weight - lbs. (kg)	5.0 (2.2)	5.0 (2.2)	5.0 (2.2)	9.0 (4.1)	9.0 (4.1)	9.0 (4.1)
Top Plate Dimensions						
Width - in. (cm)	4.25 (10.8)	4.25 (10.8)	4.25 (10.8)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Height - in. (cm)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)
Depth - in. (cm)	4.25 (10.8)	4.25 (10.8)	4.25 (10.8)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Volts	100-120	220-240	220-240	100-120	220-240	220-240
Amps	4.4	1.6	1.6	12	4.4	4.4
Watts	540	384	384	1440	1056	1056
Freq.	50/60	50/60	50/60	50/60	50/60	50/60
Phase	1	1	1	1	1	1
Max. Temp °C (°F)	540°C(1004°F)	540°C(1004°F)	540°C(1004°F)	540°C(1004°F)	540°C(1004°F)	540°C(1004°F)

Overall Dimensions	SP88850200	SP88850205	SP88850206
Width - in. (cm)	11.3 (28.8)	11.3 (28.8)	11.3 (28.8)
Height - in. (cm)	4.1 (10.5)	4.1 (10.5)	4.1 (10.5)
Depth - in. (cm)	17.2 (43.8)	17.2 (43.8)	17.2 (43.8)
Weight - lbs. (kg)	13.0 (5.9)	13.0 (5.9)	13.0 (5.9)
Top Plate Dimensions			
Width - in. (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Height - in. (cm)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)
Depth - in. (cm)	10.5 (26.7)	10.5 (26.7)	10.5 (26.7)
Volts	100-120	220-240	220-240
Amps	13	6.0	6.0
Watts	1560	1440	1440
Freq.	50/60	50/60	50/60
Phase	1	1	1
Max. Temp °C (°F)	400°C(752°F)	400°C(752°F)	400°C(752°F)

Aluminum Top Unit Specifications

Overall Dimensions	HP88857204	HP88857208	HP88857209	S88857204	S88857208	S88857209
Width - in. (cm)	8.2(20.8)	8.2(20.8)	8.2(20.8)	8.2 (20.8)	8.2 (20.8)	8.2 (20.8)
Height - in. (cm)	4.1(10.5)	4.1(10.5)	4.1(10.5)	4.1(10.5)	4.1(10.5)	4.1(10.5)
Depth - in. (cm)	14.2 (36)	14.2 (36)	14.2 (36)	14.2 (36)	14.2 (36)	14.2 (36)
Weight - lbs. (kg)	7.5 (3.4)	7.5 (3.4)	7.5 (3.4)	9.0 (4.1)	9.0 (4.1)	9.0 (4.1)
Top Plate Dimensions						
Width - in. (cm)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Height - in. (cm)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)
Depth - in. (cm)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Volts	100-120	220-240	220-240	100-120	220-240	220-240
Amps	6.0	2.6	2.6	0.2	0.1	0.1
Watts	720	624	624	24	24	24
Freq.	50/60	50/60	50/60	50/60	50/60	50/60
Phase	1	1	1	1	1	1
Max. Temp °C (°F)	300°C(572°F)	300°C(572°F)	300°C(572°F)	-	-	-

Overall Dimensions	SP88857204	SP88857208	SP88857209
Width - in. (cm)	8.2(20.8)	8.2(20.8)	8.2(20.8)
Height - in. (cm)	4.1(10.5)	4.1(10.5)	4.1(10.5)
Depth - in. (cm)	14.2 (36)	14.2 (36)	14.2 (36)
Weight - lbs. (kg)	9.0 (4.1)	9.0 (4.1)	9.0 (4.1)
Top Plate Dimensions			
Width - in. (cm)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Height - in. (cm)	1.0 (2.5)	1.0 (2.5)	1.0 (2.5)
Depth - in. (cm)	7.25 (18.4)	7.25 (18.4)	7.25 (18.4)
Volts	100-120	220-240	220-240
Amps	6.0	2.6	2.6
Watts	720	624	624
Freq.	50/60	50/60	50/60
Phase	1	1	1
Max. Temp °C (°F)	300°C(572°F)	300°C(572°F)	300°C(572°F)

Heating Specifications

Top Plate Surface - Solid Ceramic

Temperature range: 30°C - 540°C (86°F - 1004°F)* **7" x 7"** and **4" x 4"** models
30°C - 400°C (86°F - 752°F)* **10" x 10"**

	4" x 4"	7" x 7"	10" x 10"
Heat-up time to maximum temperature (unloaded top plate).	8 minutes	8 minutes	8 minutes
Accuracy of the temperature display vs. the actual average temperature of a 2" diameter of setting area at the center of the top plate (setpoint 100°C unloaded).	± 5.0°C	± 5.0°C	± 5.0°C
- Temperature stability at the center of the top plate surface (@ 100°C unloaded).	± 2.0°C	± 2.0°C	± 2.0°C
Accuracy of remote probe at user selected calibration temperature after calibration procedure.	±1.8 typical	±1.8 typical	±1.8 typical
- Temperature stability using remote probe (500 ml of water in a 1000 ml flask at 70°C)	±0.5°C	± 0.5°C	±0.5°C

Top Plate Surface - Solid Aluminum

Temperature range: 30°C - 300°C (86°F - 572°F)* **7" x 7"**

	7" x 7"
Heat-up time to maximum temperature (unloaded top plate).	10 minutes
Accuracy of the temperature display vs. the actual average temperature of a 2" diameter of setting area at the center of the top plate (setpoint 100°C unloaded).	± 10.0°C
- Temperature stability at the center of the top plate surface (@ 100°C unloaded).	± 2.0°C
Accuracy of remote probe at user selected calibration temperature after calibration procedure.	±1.8 typical
- Temperature stability using remote probe (500 ml of water in a 1000 ml flask at 70°C)	±0.5°C

*** As the top plate becomes dirty, the maximum temperature will decrease. To return the unit to its maximum temperature performance, use a mild abrasive to remove stained areas.*

Stirring Speed Specifications

Speed Range 50 to 1500 RPM(Maximum speed is dependent on the viscosity of the solution).
Stability of the stirring speed setpoint (600 ml of water in a 1000 ml glass flask) ± 5.0% at 1000 RPM

Top Plate Size	Max Recommended Flask Size	Max Weight on Top Plate
4 x 4	1 liter	15 lbs
7 x 7	4 liters	25 lbs
10 x 10	6 liters	35 lbs

Environmental Conditions

Operating:	17°C to 27°C; 20% to 80% relative humidity, non-condensing. Installation category II (overvoltage) in accordance with IEC 664. Pollution degree 2 in accordance with IEC 664. Altitude Limit: 2,000 meters.
Storage:	-25°C to 65°C 10% to 85% relative humidity

Declaration of Conformity

We hereby declare under our sole responsibility that this product conforms with the technical requirements of the following standards:

EMC:	EN 61000-3-2	Limits for harmonic current emissions
	EN 61000-3-3	Limits for voltage fluctuations and flicker
	EN 61326-1	Electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
Safety:	EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use; Part I: General Requirements
	EN 61010-2-010	Part II: Particular requirements for laboratory equipment for the heating of materials
	EN 61010-2-051	Part II: Particular requirements for laboratory equipment formixing and stirring

per the provisions of the Electromagnetic Compatibility Directive 2014/30/EU, and per the provisions of the Low Voltage Directive 2014/35/EU.

Copies of the Declaration of Conformity are available upon request.

Introduction

Isotemp Stirring Hotplate

Please read all the information in this manual before operating the unit.

Your Isotemp hot plate, stirrer or stirring hot plate is a heating and/or stirring plate designed for laboratory procedures requiring precise control of temperature and/or stirring speed. Each Isotemp model includes a digital temp display and/or a digital speed display for monitoring actual temperature and/or stirring speed.

The hot plate is capable of producing accurately controlled top plate temperatures from 30°C through 300°C, 400°C or 540°C(depending on the model). The temperature is controlled at the plate surface by an internal sensor.

The stirrer will accurately maintain stirring speeds from 50 rpm up to 1500 rpm. The top plate on the Isotemp unit is solid ceramic or solid aluminum, and is suitable for use with glass or metal vessels.

Your Isotemp model may be used for general purpose heating applications and/or general laboratory mixing of solutions, including sample preparation, heating reagents, melting paraffin, warming resinous chemicals, content analysis, solvent evaporations, digestions, media preparation and sterilization, titrations, sand baths, and microscale chemistry application.

General Usage

Do not use this product for anything other than its intended usage.

Principles of Operation

Each Isotemp unit utilizes the latest microprocessor technology to deliver a reliable, controlled, ceramic top stirring hot plate.

Your Isotemp stirring hot plate has an electronic closed-loop feedback control which will accurately maintain temperature setpoints from 30°C through 300°C, 400°C or 540°C, depending on the model. Top plate surface temperatures are tested using the latest infrared temperature measurement. The measurements are made with an infrared camera mounted approximately 26" above the top surface of the stirring hot plate. If the temperature measurement of the ceramic top is made with measurement devices other than infrared, the error of the measuring technique may be greater than the error of the unit.

The electronic stirring speed control will maintain the speed setpoint when the unit is loaded at ±5.0%. The motor in the Isotemp stirring hot plates produces maximum stirring torque under normal laboratory load conditions, and is combined with a powerful magnet to provide exceptional magnetic coupling with a stir bar.

When stirring is turned off, the unique braking feature on the Isotemp models immediately brings the fluid and stir bar down to a safe speed for quick flask removal.

General Cleaning Instructions

Wipe exterior surfaces with lightly dampened cloth containing mild soap solution.

Unpacking and Installation

Warning

Use a properly grounded electrical outlet of correct voltage and current handling capacity.

Unpacking

Remove your Isotemp unit from the carton.Inspect to ensure that the unit has not been damaged during shipment. If the unit appears to have sustained shipping damage contact the distributor from whom you purchased this product or Customer Service at 800-553- 0039. Check for stir bar and thumbscrew prior to discarding packaging.

The following items are included in the shipment:

Isotemp Unit

Cord

Stir Bar(Stirring models only)

Knob

Operation's Manual

If any of these items are missing from the carton, contact Customer Service.

Installation

Set the unit on a flat stable surface at least 12" away from combustible materials, and plug the cord set into a properly grounded electrical outlet of correct voltage and current handling capacity.

Operation

Warning

Use caution when heating volatile materials; top surface and element can reach the "Flash Point Temperature" of many chemicals. These hot plates and stirring hot plates are not explosion proof. Fire or explosion may result. Unit contains components which may ignite such materials.

Use appropriate hand and eye protection when handling hazardous chemicals.

"Caution: Hot Top. Avoid Contact." The top plate of the unit can remain hot for some time after use. A "CAUTION - HOT TOP" light will remain on until top plate temperature cools to below 50°C.

Caution

To avoid damage to the top plate or heating element, always keep a vessel filled with liquid on the top plate of a stirring hot plate when the unit is heating or cooling.

Hard Switch

The Isotemp unit has a hard switch on the left side of the unit. The unit may be powered on by pressing the hard switch. When the unit is turned on, the unit will initialize and then "SP or HP" will be displayed on the temp display screen until a temperature is entered. Software version will be displayed on speed display screen. To turn off power to the unit, press the hard switch off.

Setting the Stirring Speed

Your Isotemp stirring hot plate has an electronic feed-back speed control which will maintain a speed set-point from 50 rpm through 1500 rpm at ±5.0%. (Maximum speed is dependent on viscosity of the solution.)

To set the speed, turn the STIR knob to your desired setting. Turn the knob clockwise to increase the speed or counter-clockwise to decrease the speed with 10 rpm increments. To discontinue stirring, turn knob counter-clockwise to OFF.

Note

The solution temperature is approximately 25% cooler than the hot plate surface temperature.

Note

If you allow the top plate to reach the maximum temperature of 540°C while preheating and then turn the control down to a setpoint less than 200°C, the temperature of the top will drop rapidly to 200°C. Because of the natural cooling characteristics of ceramic, the temperature of the top will drop much more gradually after the top plate temperature reaches 200°C.

Note

Boiling times are dependent on solution volume and the surface area of the flask that is exposed to the hot plate. For example, when heating the same amount of solution in a 2L flask vs. a 1L flask, the solution will heat about 20% faster.

Setting the Temperature

Your Isotemp stirring hot plate has an electronic closed-loop feedback control which will accurately maintain temperature setpoints in 1° increments from 30°C through 300°C, 400°C or 540°C, depending on the model. An unloaded hot plate will heat to maximum temperature in just 8 minutes. The temperature is controlled at the top plate by the internal sensor. A "CAUTION - HOT TOP" light on the front panel will illuminate whenever the top surface temperature exceeds 50°C.

Your Isotemp stirring hot plate will display the temperature in °C. When choosing a setpoint, the display will indicate the setpoint for 5 seconds, after which the display will flash until the desired setpoint is reached.

When pluging in the remote probe , turn the temperature knob to "OFF", then adjust new temperature setpoint Value. The probe light will illuminate when the remote probe is plugged in."CAUTION - HOT TOP" light will flash until the top surface has cooled to below 50°C. Nothing will be displayed on the screen when the unit has been cooled below 50°C and the knob is turned to OFF.

Controlling Solution Temperature Using External Probe

To control the solution temperature plug a PT100 probe into the probe receptacle located on the back side of the unit. Place the probe into the solution. The display will indicate the actual temperature of the solution as measured by the probe.

The external probe offers more exact temperature control than regulating the top plate by the internal sensor. If you need to maintain a precise setpoint it is recommend to use a probe to control the solution temperature instead of controlling by the top plate temperature.

When using a probe with the Isotemp unit it is recommended that a clamp on a support rod be used to hold the probe in the solution.

To ensure accurate probe readings, as much of the probe sheath as possible should be immersed in the solution. Make sure the probe is immersed in the liquid and is not located in air or outside of the solution. If the probe is plugged into the hot plate, but is not in solution while the heat control is operating, the temperature display will continue to indicate an ambient temperature, and a probe out of solution error will occur. Because the set point cannot be reached the heating element will continue to supply heat to the top plate, and the maximum top plate temperature(300°C, 400°C or 540°C) may be reached. If the remote probe does not sense a temperature change in three minutes the unit will display ExProbe Err and shut down.

Heating Small Volumes

Preheating small volumes is not necessary as it may cause the temperature to overshoot the desired set-point.

Heating Metal Vessels and Sand Baths

Isotemp is capable of precisely regulating the top plate temperature, metal vessels and sand baths may be heated safely without the danger of the ceramic top breaking. Use the lowest temperature setting possible for applications to limit thermal stress to the ceramic top. Using a metal vessel or sand bath may reduce the life of the stirring hot plate.

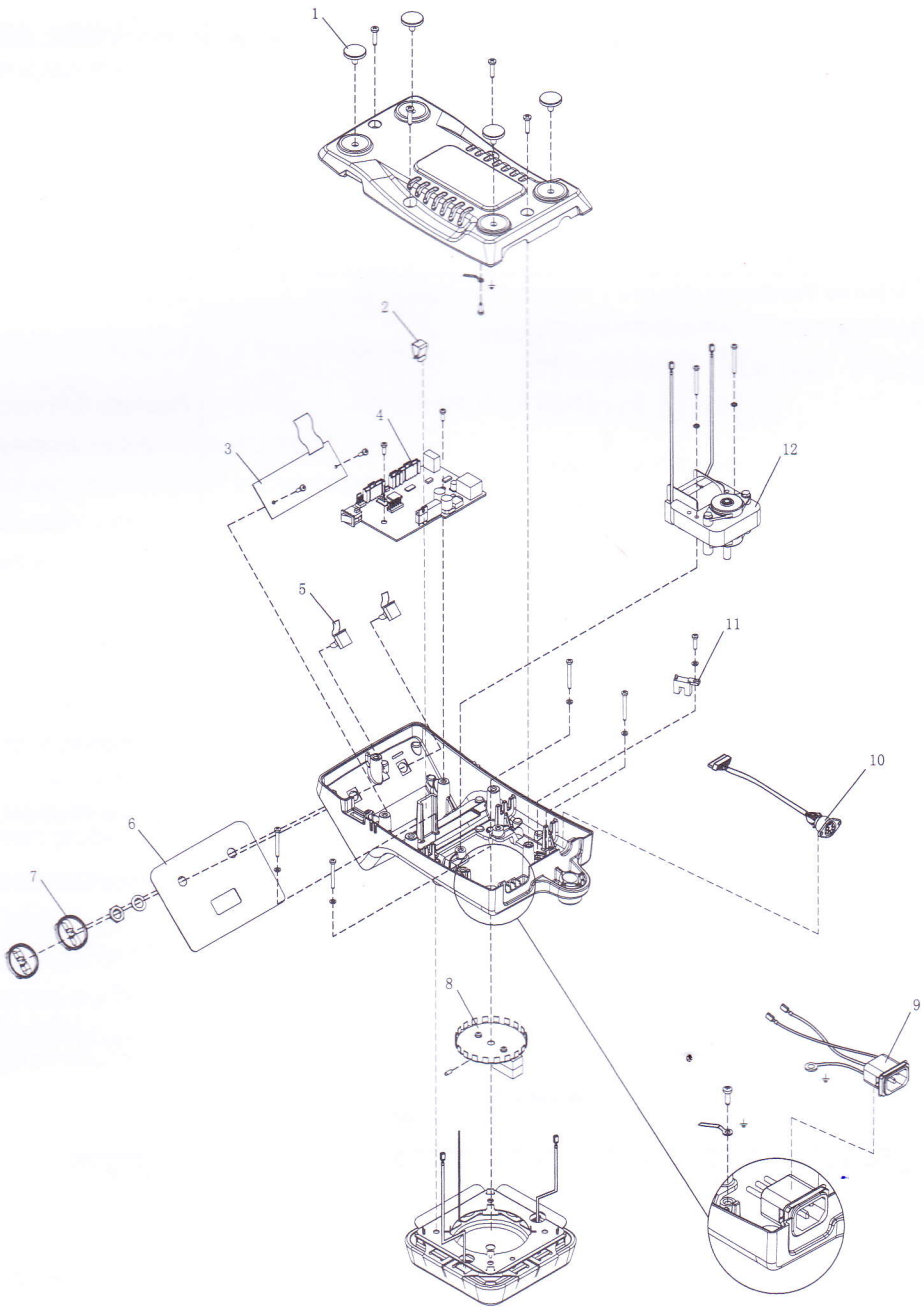
Troubleshooting

Error Codes

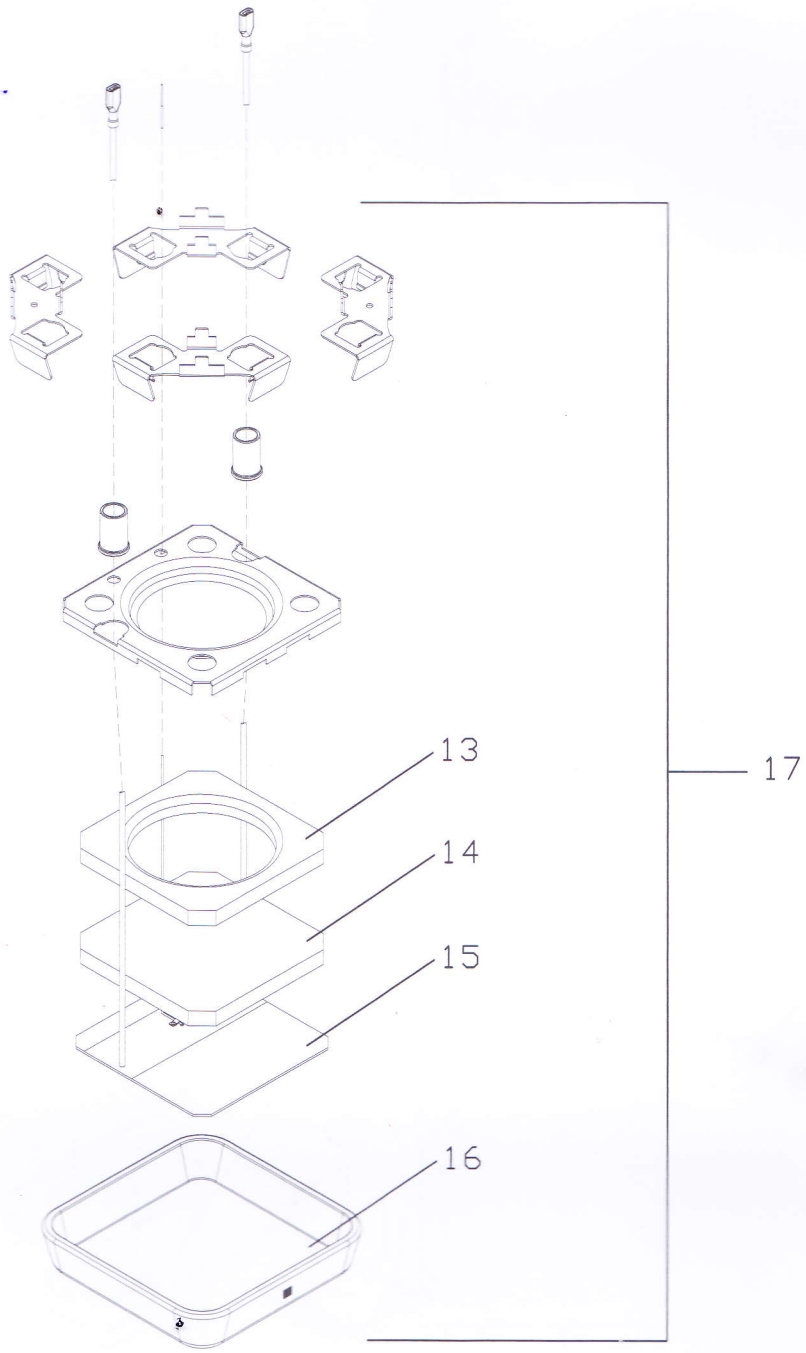
Errors E01 through E04 are heating errors. Error Handler will lock out heating functions if heating error is detected. Stirring functionality is unaffected. Error E05 is stirring error. Error Handler will lock out stirring functions if stirring error is detected. Heating functionality is unaffected. If the condition that caused the error is no longer present, the unit will clear Errors E01-E05 automatically.

Displayed Message	Intended to Detect	Cause	Solution
E01	Internal thermocouple out of range.	Internal thermocouple not connected.	Ensure proper connection and polarity of thermocouple.
		Thermocouple open.	Replace thermocouple (attached to element).
		Thermocouple connected backwards (reversed polarity).	Ensure proper connection and polarity of thermocouple.
E02	Excessive top heat-up time.	Internal thermocouple short circuit.	Remove short.
		Failure in Internal thermocouple.	Replace thermocouple (attached to element).
		Failure in Element.	Replace Element.
		Failure in optocoupler/triac circuit.	Replace Control Board.
E03	External Probe left out of solution.	External Probe left out of solution.	Place external probe into solution.
		External probe connected backwards.	Correct orientation of external probe.
E04	OTP thermocouple out of range.	OTP Circuit failure.	Replace Control Board.
E05	Motor system failure.	Locked rotor condition.	Free locked rotor.
		Failure of motor.	Replace motor.
		Failure of motor circuit.	Replace Control Board.
		Failure of motor sensor.	Replace motor sensor.

Exploded Views

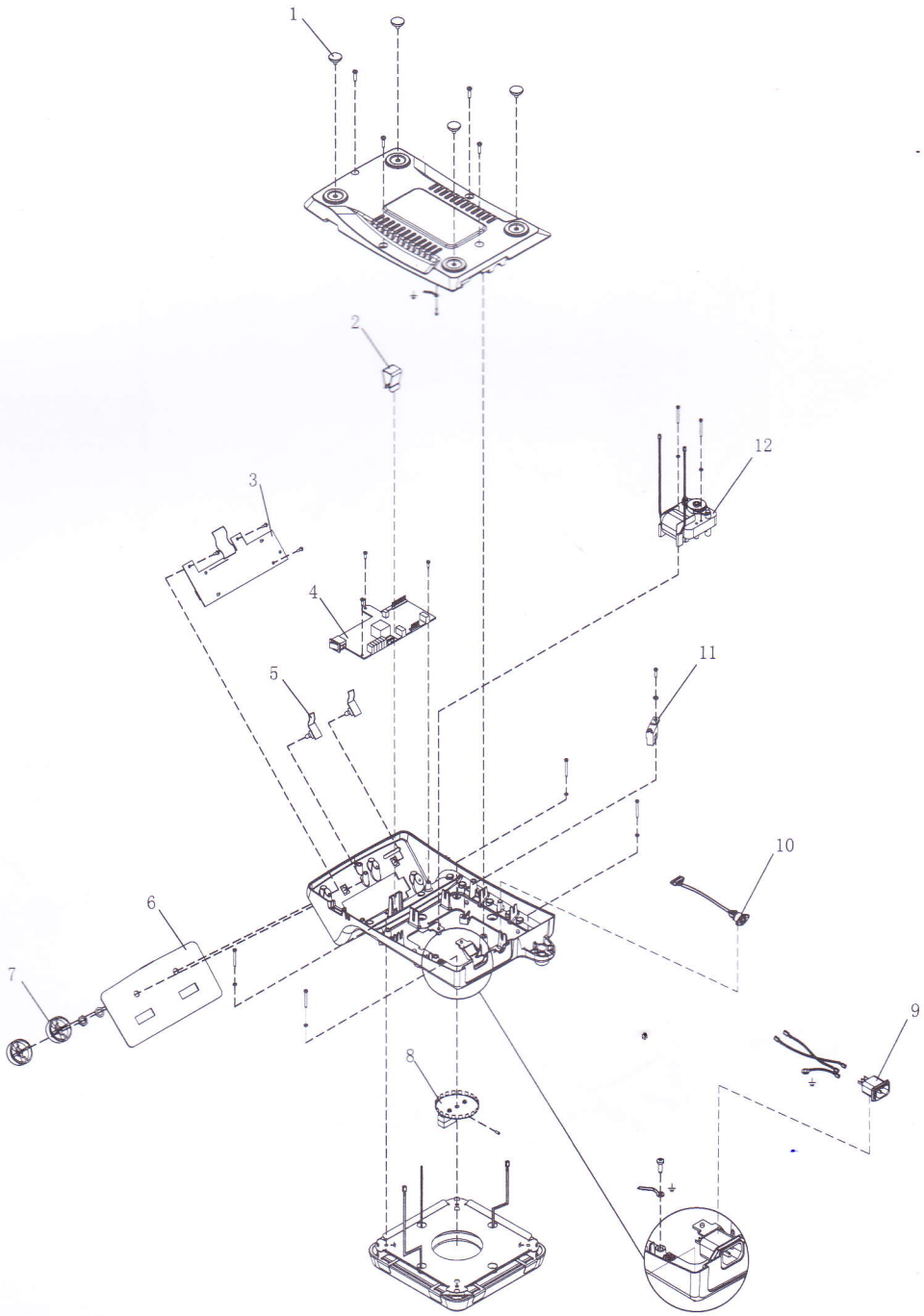


4x4 Exploded View

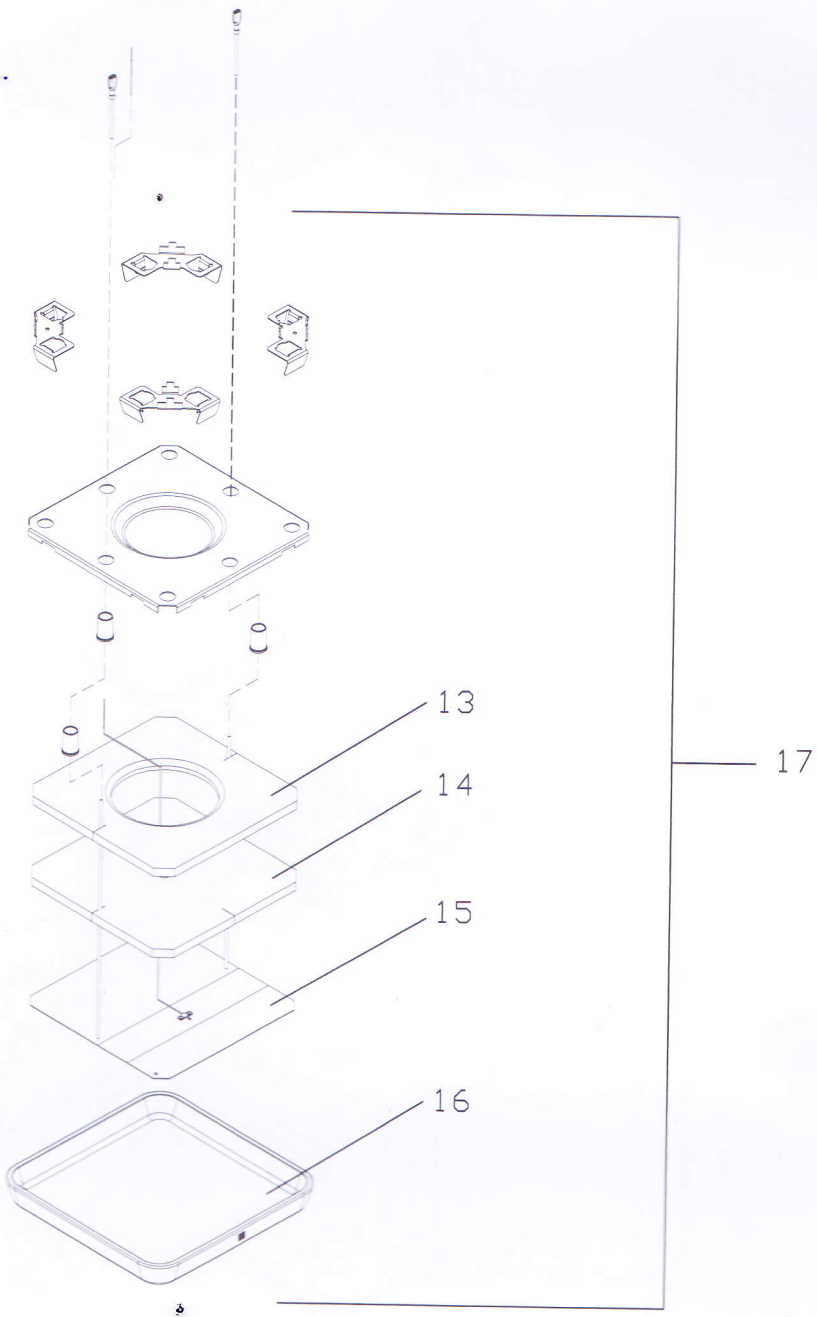


4x4 Exploded View - Top Plate

Exploded Views

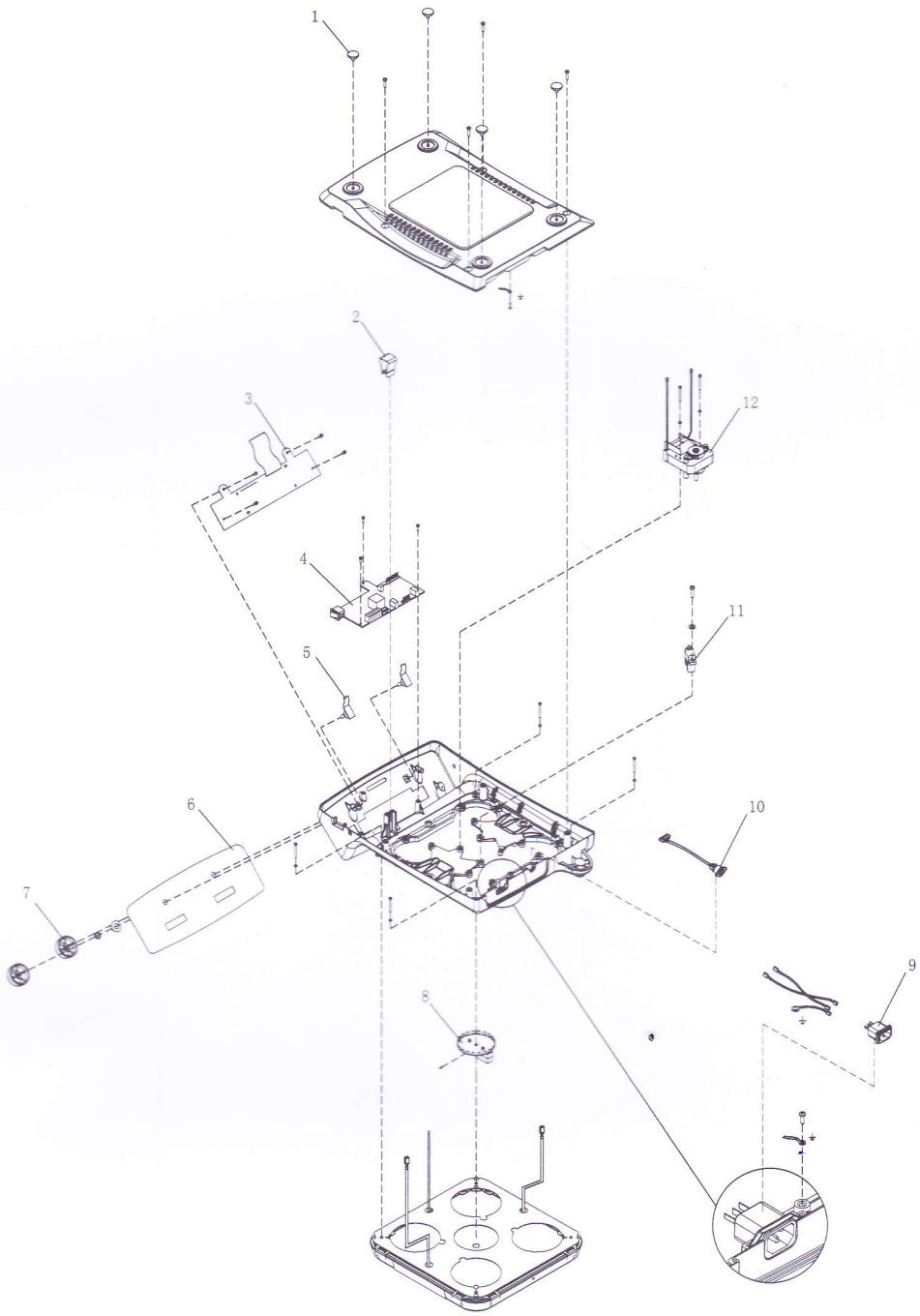


7x7 Exploded View

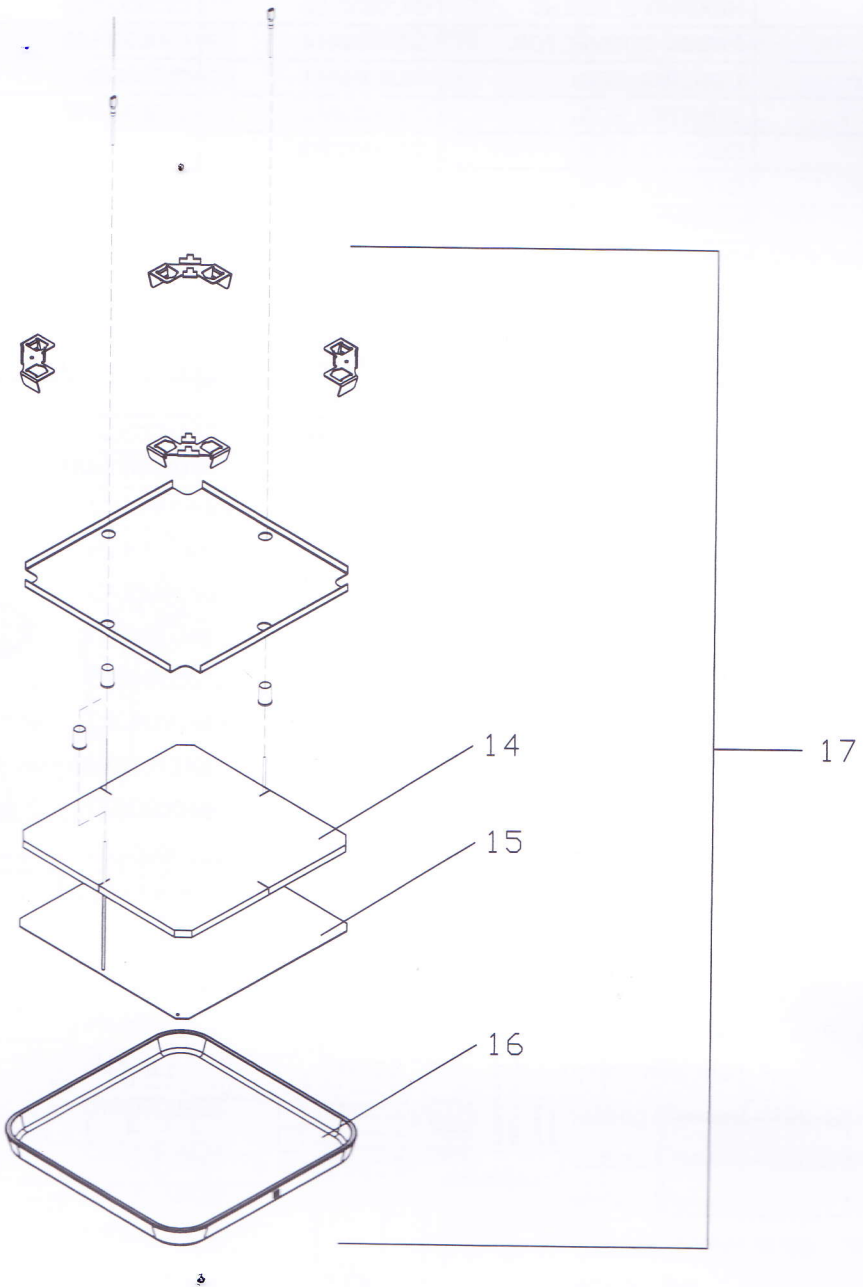


7x7 Exploded View - Top Plate

Exploded Views



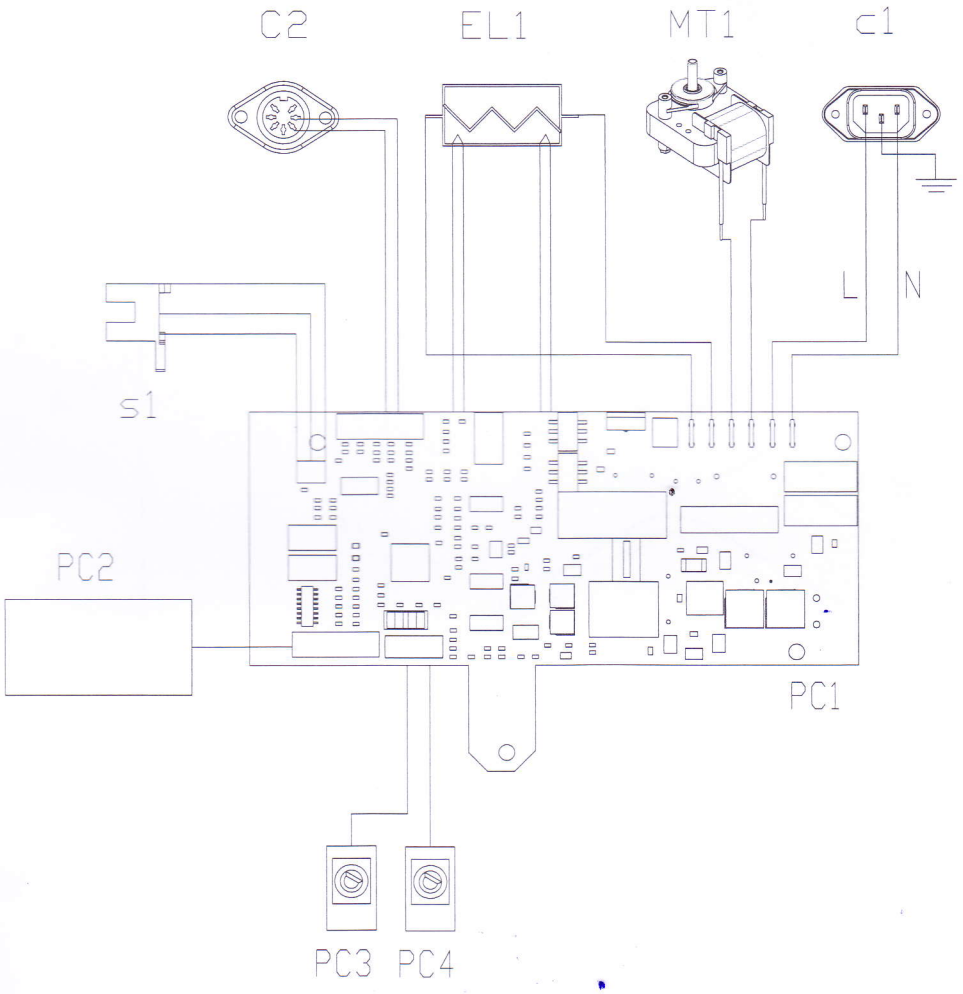
10x10 Exploded View



10x10 Exploded View - Top Plate

Wiring Diagram

REF.	DESCRIPTION	(4X4)	(7X7)	(10x10)
C1	INLET	CIC0000793	CIC0000469	CIC0000469
EL(100-120V)	HEATING ELEMENT	CIC0000539	CIC0000925	CIC0000927
EL(220-240V)	HEATING ELEMENT	CIC0000538	CIC0000924	CIC0000926
C2	PROBE CONNECTOR	CIC0000474	CIC0000589	CIC0000590
PC1(SP100-120V)	CONTROL PCB	CIC0000561	CIC0000567	CIC0000990
PC1(HP100-120V)	CONTROL PCB	CIC0000562	CIC0000568	CIC0001029
PC1(SP100-120)	CONTROL PCB	CIC0000563	CIC0000569	CIC0000991
PC1(SP220-240V)	CONTROL PCB	CIC0000564	CIC0000570	CIC0001030
PC1(HP220-240V)	CONTROL PCB	CIC0000565	CIC0000571	CIC0001031
PC1(S220-240V)	CONTROL PCB	CIC0000566	CIC0000572	CIC0001032
PC2(SP/HP)	CONTROL PCB	CIC0000550	CIC0000551	CIC0000554
PC2(S)	CONTROL PCB	CIC0000550	CIC0000553	CIC0000556
PC3/PC4	P.O.T PCB	CIC0000548	CIC0000548	CIC0000548
S1	SPEED SENSOR	SC1310X1	SC1310X1	SC1310X1
MT1(100-120V)	MOTOR	CIC0000480	CIC0000482	CIC0000484
MT1(220-240V)	MOTOR	CIC0000481	CIC0000483	CIC0000485



Replacement Parts

Key	4x4 Part No.	7x7 Part No.	10x10 Part No.	Description
1	FTX34	FTX34	FTX34	Foot (4)
2	CIC0001145	CIC0001145	CCIC0001145	Clips for Triac
3	CIC0000561	CIC0000567	CIC0000990	Control Board SP - 100-120V
3	CIC0000564	CIC0000570	CIC0001030	Control Board SP - 220-240V
3	CIC0000562	CIC0000568	CIC0001029	Control Board HP- 100-120V
3	CIC0000565	CIC0000571	CIC0001031	Control Board HP - 220-240V
3	CIC0000563	CIC0000569	CIC0000991	Control Board S- 100-120V
3	CIC0000566	CIC0000572	CIC0001032	Control Board S- 220-240V
3		CIC0001033		Control Board SP Al top- 100-120V
3		CIC0000988		Control Board SP Al top - 220-240V
3		CIC0001034		Control Board HP Al top - 100-120V
3		CIC0001042		Control Board HP Al top - 220-240V
4	CIC0000550	CIC0000551	CIC0000554	Display Board SP/HP
4		CIC0000553	CIC0000556	Display Board S
5	PC1313X1	PC1313X1	PC1313X1	Speed/Heat Adjustment Board (2)
6	CIC0000497	CIC0000508	CIC0000517	Dial Plate SP
6	CIC0000498	CIC0000509	CIC0000518	Dial Plate HP
6	CIC0000499	CIC0000510	CIC0000519	Dial Plate S
7	CIC0000549	CIC0000549	CIC0000549	Knob (2)
8	MG1310X1	MG1313X1	MG1313X1	Bar Magnet Assembly
9	CIC0000793	CIC0000469	CIC0000469	Power Entry Module
10	CIC0000474	CIC0000589	CIC0000590	Probe Connector
11	SC1310X1	SC1313X1	SC1313X1	Speed Sensor
12	CIC0000480	CIC0000482	CIC0000484	Motor-100-120V
12	CIC0000481	CIC0000483	CIC0000485	Motor - 220-240V
13	JNX33	JNX35	---	Lower Insulation
14	JNX34	JNX36	JNX38	Upper Insulation
15	CIC0000539	CIC0000925	CIC0000927	Heating Element - 100-120V
15	CIC0000538	CIC0000924	CIC0000926	Heating Element - 220-240V
15		CIC0000929		Heating Element Al top - 100-120V
15		CIC0000928		Heating Element Al top - 220-240V
16	540-0033	710-0117	719-0073	Ceramic Top
16		CT1420X1-CMC		Aluminum Top
17	CIC0001430	CIC0001432	CIC0001436	Hot Plate Top Assembly - 100-120V
17	CIC0001431	CIC0001433	CIC0001437	Hot Plate Top Assembly - 220-240V
17		CIC0001440		Hot Plate Top Assembly - 100-120V
17		CIC0001441		Hot Plate Top Assembly - 220-240V

Accessories

Part No.	Description
CIC0000586	Exterior Probe PT100
CIC0000587	Exterior Probe PT1000 Uncoated
CIC0000588	Exterior Probe PT100 Coated with 200c Teflon
7077	Thermometer Clamp
7068	90° Clamp Holder
1000-2	12" Aluminum Rod
7078	Large Clamp
7079	Small Clamp (up to 1/2")
CIC0001146	Transparent Shield 4" x 4"
CIC0000585	Transparent Shield 7" x 7"
CIC0001147	Transparent Shield 10" x 10"

FISHER SCIENTIFIC STANDARD PRODUCT WARRANTY

The Warranty Period starts two weeks from the date your equipment is shipped from our facility. This allows for shipping time so the warranty will go into effect at approximately the same time your equipment is delivered. The warranty protection extends to any subsequent owner during the first year warranty period.

During the first two (2) years, component parts proven to be non-conforming in materials or workmanship will be repaired or replaced at Fisher Scientific's expense, labor included. Installation and calibration are not covered by this warranty agreement. The Technical Services Department must be contacted for warranty determination and direction prior to performance of any repairs. Expendable items, glass, filters and gaskets are excluded from this warranty.

Replacement or repair of components parts or equipment under this warranty shall not extend the warranty to either the equipment or to the component part beyond the original warranty period. The Technical Services Department must give prior approval for return of any components or equipment. At Fisher Scientific's option, all non-conforming parts must be returned to Fisher Scientific postage paid and replacement parts are shipped FOB destination.

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Your local Fisher Scientific Sales Office is ready to help with comprehensive site preparation information before your equipment arrives. Printed instruction manuals carefully detail equipment installation, operation and preventive maintenance.

If equipment service is required, please call your Technical Services Department at 1-800-438-4851 (USA and Canada) or 1-740-373-4763. We're ready to answer your questions on equipment warranty, operation, maintenance, service and special application. Outside the USA, contact your local distributor for warranty information.