ThermoSpas
Hot Tubs • Chemicals • Service
155 EAST STREET • WALLINGFORD, CT • 06492

ELECTRICAL GUIDE

ThermoSpas manufactures many different models and each is available in a variety of packages. This guide is designed to help you best prepare for the model you have ordered or are planning to order.

DESIGNER SERIES

	PKG.	ELEC.
GEMINI	ELITE	B
	DELUXE	B
TOWNHOUSE	STD	A
	ELITE	B
	DELUXE	B
LEXINGTON	STD	A
	ELITE	B
	DELUXE	B
CONCORD/MANCHESTER	STD	A
	ELITE	B
	DELUXE	C
PARK AVENUE/MADISON	STD	A
	ELITE	B
	DELUXE	C
PARK AVENUE	EXEC	D
OLYMPIAN	STD	A
	ELITE	B
	DELUXE	C
	EXEC	D
HEALING SPA	EXEC	D
	DELUXE	C
MANHATTAN	EXEC	F
	DELUXE	C

PREMIER SERIES

	PKG.	ELEC.
DUO	ECO	E
	VALUE	G
	STD	A
AVALON	ECO	E
	VALUE	G
	STD	A
	ELITE	B
CHESAPEAKE	VALUE	G
	STD	A
	ELITE	B
PHOENIX	ECO	E
	VALUE	G
	STD	A
	ELITE	B
PENTHOUSE	ECO	E
	VALUE	G
	STD	A

PLEASE NOTE:
When a service line offers a choice of amperage (Example: 30 or 50 amps) the lower amperage will not allow the heater to operate when any of the pumps are on high speed or if the blower is activated. This is only a problem for people who wish to raise water temperature during usage or for those who use their spas over a long duration. THERMOSPAS recommends using the higher amperage, when possible, especially on outdoor installations.

ELECTRICAL REQUIREMENTS

- * **A)** 240V, 50 Amps, 4 wire (line 1, line 2, neutral & ground) (1900D)
- * **B)** 240V, 50 Amps, 4 wire (line 1, line 2, neutral & ground) (2000D)
- * **C)** 240V, 60 Amps, 4 wire (line 1, line 2, neutral & ground) (2000DX)
- **D)** REQUIRES BOTH OF THE FOLLOWING 240V SERVICES:
  - * • 240V, 60 Amps, 4 wire (line 1, line 2, neutral & ground) (2000DX)
  - • 240V, 20 Amps, 4 wire (line 1, line 2, neutral & ground)
- **E)** 120V, 20 Amps, 3 wire (line 1, neutral, & ground) (1500D)
- **F)** REQUIRES BOTH OF THE FOLLOWING 240V SERVICES:
  - * • 240V, 60 Amps, 4 wire (line 1, line 2, neutral & ground) (2000DX)
  - • 240V, 30 Amps, 4 wire (line 1, line 2, neutral & ground)
- * **G)** 240V, 40 Amps, 4 wire (line 1, line 2, neutral & ground) (1800D)

* LOWER AMPERAGES ARE AVAILABLE.

SEE BACK PAGE FOR ADDITIONAL ELECTRICAL INSTRUCTIONS CONCERNING 240V SPAS AND GFCI BREAKERS.

ELECTRICAL INSTALLATION: The electrical installation must be accomplished by a qualified electrician in accordance with our recommendations, the National Electrical Code (NEC) & with any local codes effective at the time of installation.

Be certain to follow the Electrical Guide & install the proper service for your spa model. An improper service will invalidate your warranty & changing service lines may be costly.

- Your spa equipment requires a DEDICATED CIRCUIT. No other appliances or lights can be on this circuit.
- Use copper conductors only.
- **The GROUND must be equal to or larger than the largest power conductor, it may cause false tripping of GFCI breaker if it is not.**
- The chart below must be used to determine the correct wire & breaker specifications.

RECOMMENDED WIRE AND BREAKER SIZES PER NEC 310.16

FOR COPPER CONDUCTORS						
CIRCUIT & BREAKER RATING	15 AMPS	20 AMPS	30 AMPS	40 AMPS	50 AMPS	60 AMPS
MAXIMUM % PERMISSIBLE LOAD	12 AMPS	16 AMPS	24 AMPS	32 AMPS	40 AMPS	48 AMPS
MAXIMUM SIZE CIRCUIT WIRES	14	12	10	8	8	6

! CAUTION

WARNING: FAILURE TO PROVIDE A DEDICATED CIRCUIT CAN CAUSE EQUIPMENT DAMAGE AND INVALIDATE YOUR WARRANTY

GROUND FAULT CIRCUT INTERRUPT (GFCI) REQUIREMENTS:

Thank you for purchasing a THERMOSPAS. We wish you many years of enjoyment with your new hot tub.

The _____ model requires a _____ GFCI service to be installed by a qualified electrician. Please be aware that some models have optional amperages i.e. 30 amp or 50 amp units or units with 40 amp or 60 amp. If you choose to run the system on the lower amperage, your heater will only operate during the filtration and/or heating cycle. When you operate your hot tub and activate any of the pumps and/or the blower, it will automatically turn the heater OFF. ThermoSpas does not recommend using the lower amperage for hot tubs installed outdoors.

In January 1994, the National Electrical Code required all hot tubs to be installed with a GFCI breaker. In an effort to minimize the cost of your electrical installation, ThermoSpas makes available to its customers a GFCI breaker enclosed in a rainproof box for a combined price of $129. This package is designed to save you installation costs in two ways. First, the price of the GFCI breaker and rainproof box should be $25 - $100 less than purchasing it from an electrical supply house. Second, by using our rainproof box and GFCI combination, you can eliminate purchasing a separate disconnect box by installing a double pole breaker (220V installation) in your panel box and using the rainproof GFCI box (both GFCI protection and a disconnect box) The cost of a disconnect box alone is approx. $50.

ADDITIONAL ELECTRICAL INSTRUCTIONS

When installing 240-volt spas, one of the first considerations is whether or not your main service or subpanel feeding your spa has the capacity to provide sufficient power to your spa. A licensed electrician will be able to perform a load calculation to determine this. The length of the wiring from the panel or feed to your spa also has to be determined. If the total run exceeds 75 feet, the wire size must be increased by one wire size to adjust for the corresponding voltage drop.

Wiring to your spa must be **COPPER ONLY**, not aluminum. The wiring from the main panel to the subpanel may be aluminum provided it is sized properly—usually one wire gauge larger than the same ampacity copper wire. The subpanel must be rated for aluminum or copper, which is designated “AL/CU” if aluminum wire is used.

In all spa installations, refer to the NEC, Article 680. For proper wire sizes and/or derating, refer to NEC Table 310.16 and the accompanying correction factors.

If your GFCI breaker is mounted in your main panel, the white pigtail on the breaker must be connected into the ground/neutral bar. On a main service panel and a main service panel only, the ground bar is bonded to the neutral bar. Note that the neutral wire (white wire) must be connected to the “load neutral” terminal on the GFCI breaker, and not the ground/neutral bar. If your spa is wired in this manner there must be a disconnecting means (disconnect switch) located more than five feet away from the spa, measured from the inside wall of the spa, and cannot be located out of sight or more than 50 feet from your spa.

Many times a spa service will be supplied by a regular two-pole breaker at the rated amperage at the main panel or subpanel, and the disconnecting means (NEC Article 100) is usually a 125-amp subpanel with the required GFCI breaker(s) mounted inside, and the GFCI becomes the required disconnecting means. These subpanels sometimes will not have a ground bar included and it must be purchased separately. The ground bar is a small metal bar with holes provided for ground wires and screws to secure the wires to the ground bar. This ground bar is NOT to be bonded or connected to the neutral bar, and the neutral bar must be isolated from any grounding source. The GFCI pigtail in this instance is connected into the neutral bar—not the ground bar.