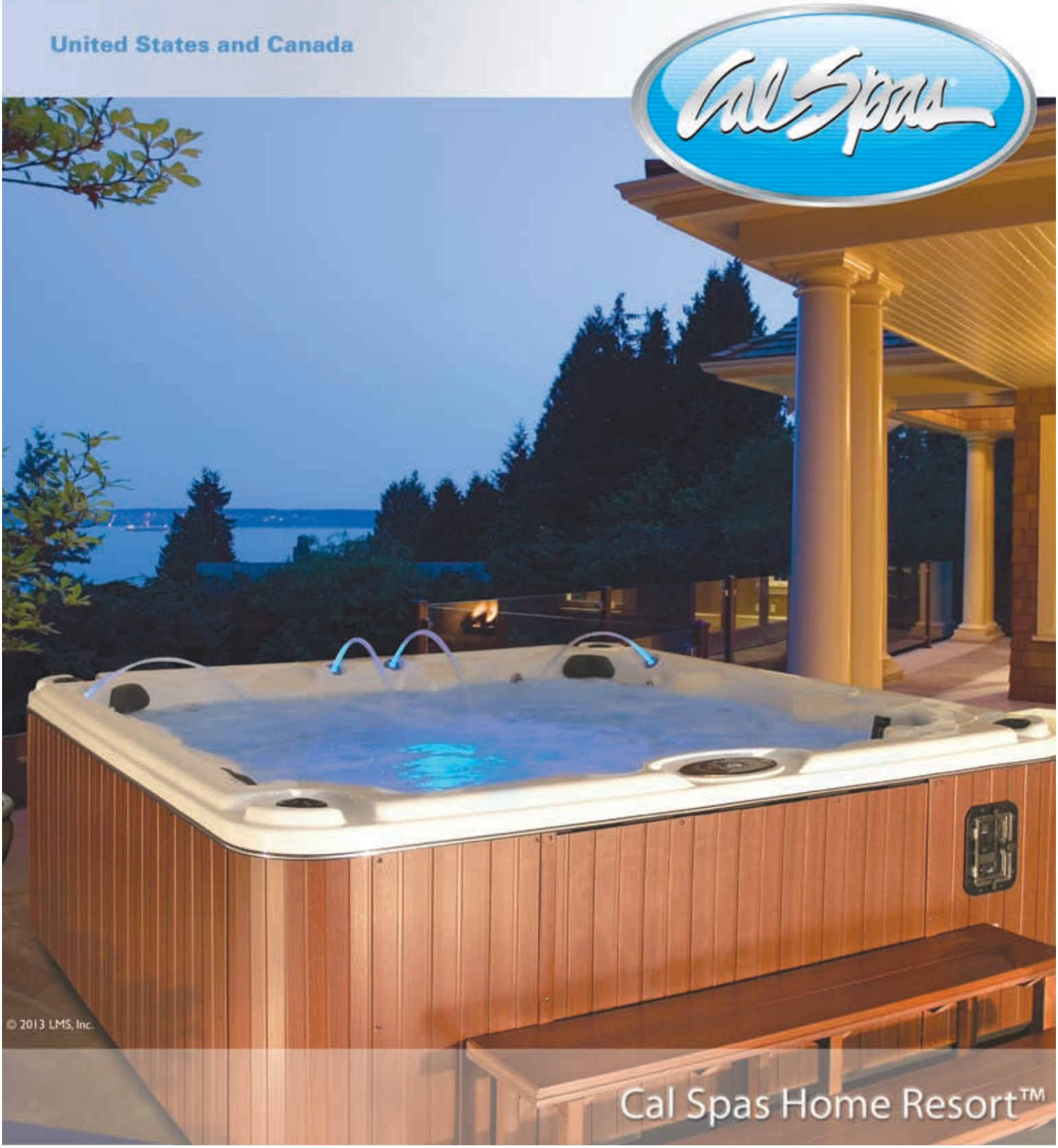
www.calspas.com

Portable Spa Pre-Delivery Guide

240V / 60Hz Installation

United States and Canada



LTR50001024, Rev. K
9/18/13

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This guide is intended for owners of Cal Spas portable spas sold in the United States and Canada.

If you have an in-ground spa, you will need the Cal Spas In-ground Spa Pre-Delivery Guide, available on the Cal Spas web site.

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Due to continuous improvement programs, all models, operation, and/or specifications are subject to change without prior notice.

LTR50001024, Rev. K
9/18/13
100-1273

CONTACT INFORMATION

For customer service, please contact your authorized dealer immediately. If you need additional information and/or assistance, contact:

LMS Customer Service Department
1462 East Ninth Street
Pomona, CA 91766.

Toll Free: 1-800-CAL-SPAS
Fax: 1-909-629-3890

Locating Your Spa

Pre-Delivery Checklist

Most cities and counties require permits for exterior construction and electrical circuits. In addition, some communities have codes requiring residential barriers such as fencing and/or self-closing gates on property to prevent unsupervised access to the property by children under the age of 5. Your dealer can provide information on which permits may be required and how to obtain them prior to the delivery of your spa.

For additional operating and installation information, please see your selling dealer.

Before Delivery	
	Plan your delivery route
	Choose a suitable location for the spa
	Lay a 3” - 4” (8 cm - 10 cm) concrete slab
	Install dedicated electrical supply
After Delivery	
	Place spa on slab
	Connect electrical components

Planning the Best Location

Safety first

Do not place your spa within 10 feet (3 meters) of overhead power lines.

Make sure the spa is positioned so that access to the equipment compartment and all side panels will not be blocked. Be certain that your installation will meet all city and local safety codes and requirements.

Consider how you will use your spa

How you intend to use your spa will help you determine where you should position it. For example, will you use your spa for recreational or therapeutic purposes? If your spa is mainly used for family recreation, be sure to leave plenty of room around it for activity. If you will use it for relaxation and therapy, you’ll probably want to create a specific mood around it.

Plan for your environment

If you live in a region where it snows in the winter or rains frequently, place the spa near a house entry. By doing this, you will have a place to change clothes and not be uncomfortable.

Consider your privacy

In a cold-weather climate, bare trees won’t provide much privacy. Think of your spa’s surroundings during all seasons to determine your best privacy options. Consider the view of your neighbors as well when you plan the location of your spa.

Provide a view with your spa

Think about the direction you will be facing when sitting in your spa. Do you have a special landscaped area in your yard that you find enjoyable? Perhaps there is an area that catches a soothing breeze during the day or a lovely sunset in the evening.

Keep your spa clean

Prevent dirt and contaminants from being tracked into your spa by placing a foot mat at the spa’s entrance where the bather’s can clean their feet before entering your spa. You may also consider keeping a small water-filled basin nearby for bathers to rinse their feet before entering your spa.

In planning your spa’s location, consider a location where the path to and from the house can be kept clean and free of debris.

Allow for service access

Many people choose to install a decorative structure around their spa. If you are installing your spa with any type of structure on the outside, such as a gazebo, remember to allow access for service. It is always best to design special installations so that the spa can still be accessed.

Site Preparation

Your spa needs a solid and level foundation. The area that it sits on must be able to support the weight of the spa, with water and the occupants who use it. If the foundation is inadequate, it may shift or settle after the spa is in place, causing stress that could DAMAGE YOUR SPA SHELL AND FINISH.

Damage caused by inadequate or improper foundation support is not covered by the warranty. It is the responsibility of the spa owner to provide a proper foundation for the spa.

Place the spa on an elevated 3" to 4" (8 cm - 10 cm) concrete slab. Pavers, gravel, brick, sand, timbers or dirt foundations are ***not*** adequate to support the spa.

We strongly recommend that a qualified, licensed contractor prepare the foundation for your spa.

If you are installing the spa indoors, pay close attention to the flooring beneath it. Choose flooring that will not be damaged or stained.

If you are installing your spa on an elevated wood deck or other structure, it is highly recommended that you consult a structural engineer or contractor to ensure the structure will support the weight of 150 pounds per square foot (732 kg / m2).

To properly identify the weight of your new spa when full, remember water weighs 8.33 per gallon, or 1 kg per liter. For example, an average 8' spa spa holds approximately 500 gallons, or 1892 liters, of water. Using this formula, you will find that the weight of the water alone is 4,165 lbs, or 1892 kg. Combined with the dry weight of the spa you will note that this spa will weigh approximately 5,000 lbs, or 2267 kg, when full of water.

Your Cal Spas retailer can help you with your foundation and more. Your retailer has a wealth of information and experience about how to get the most out of your spa and can provide you with a full line of accessories that are designed to complement your spa and increase your enjoyment.



Important: See pages 5 and 6 for planning the stub-up location before the foundation is laid.

Clearance for Service Access

While you are planning where to locate your spa, you need to determine how much access you will need for service.

All spa models require access to the front of the spa for periodic service. For this reason, the spa should never be placed in a manner where the front is permanently blocked. Examples include placing the front of the spa against a building, structural posts or colums, or a fence.

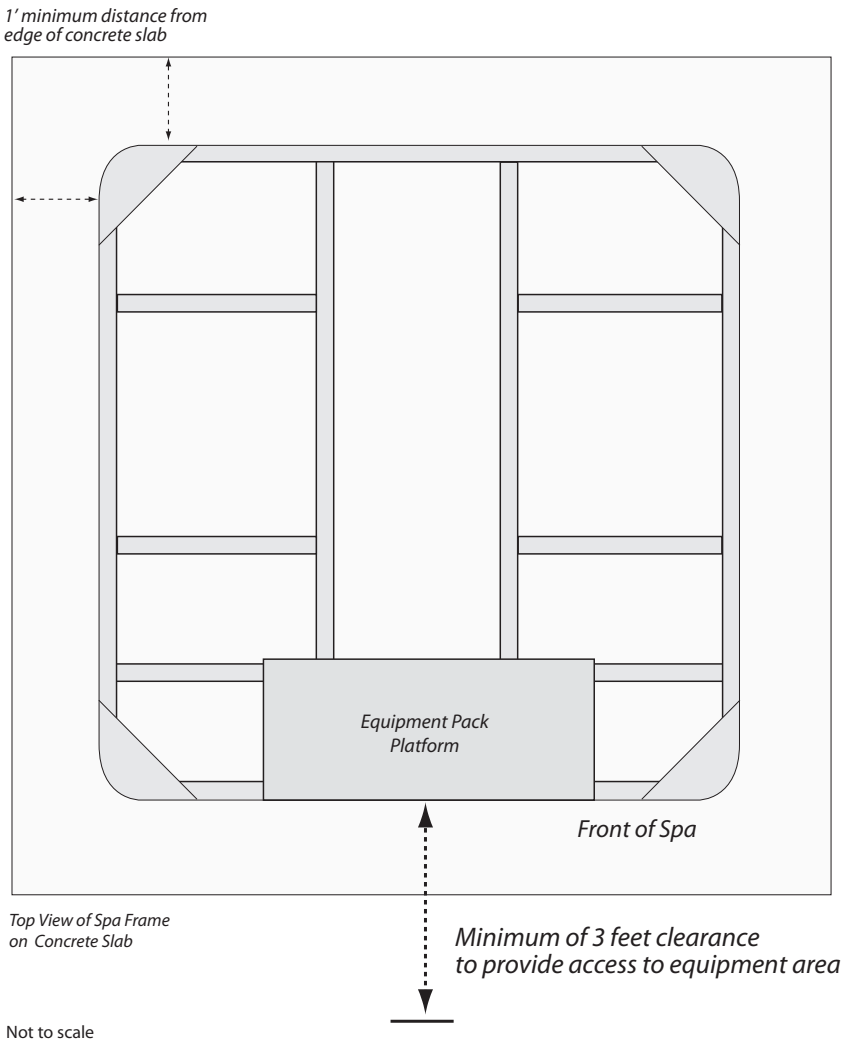
For some spa models, the sides and the back do not require service access and can be placed where you wish, provided the spa is on a 3” - 4” (8 cm - 10 cm) concrete slab. See the figure below.

Other spa models require access to the sides or rear should if they ever need service or repair. See the figure on page 4.

If you are planning to enclose or surround your spa with a deck, make sure there is access for service or repair.

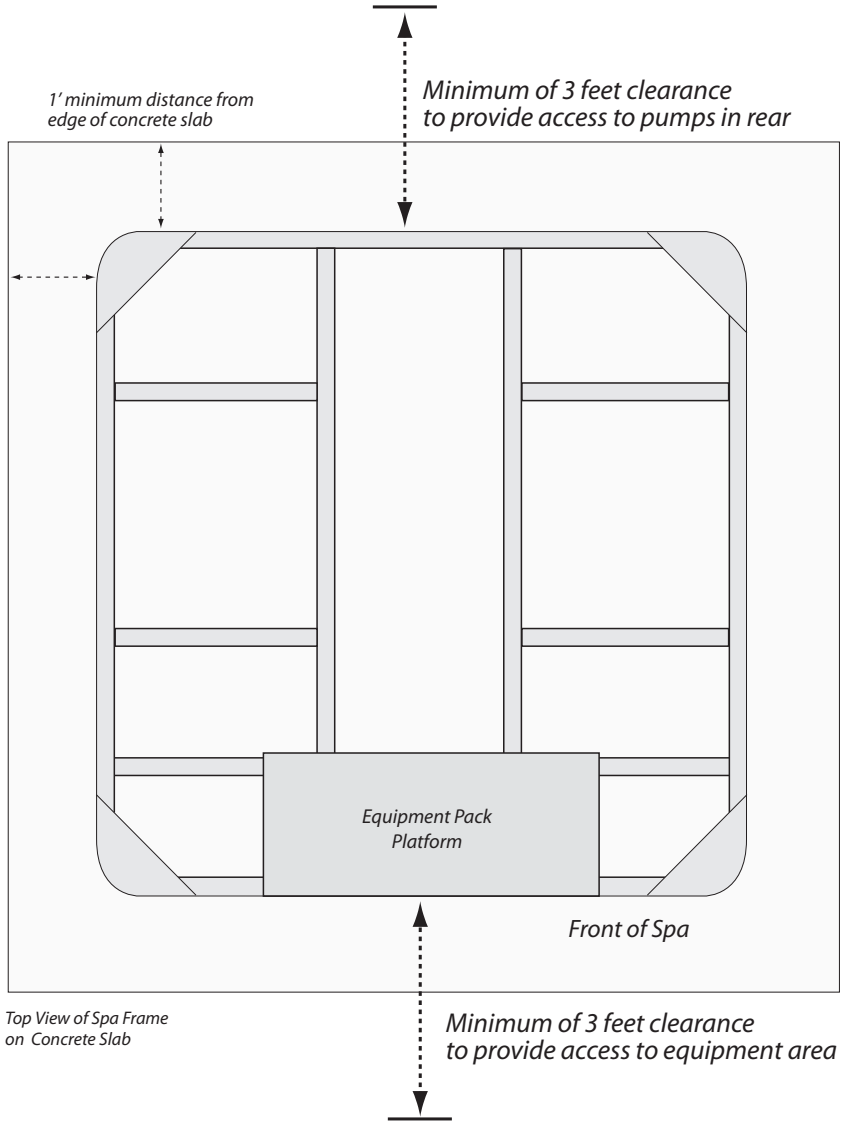
These spas require clearance in the front of the spa only.

- Escape series (except ES864B, which also requires clearance on the RIGHT SIDE)
- Aqua series
- Zone series
- Xtream series
- Connect series
- Resort series (except R890B with three pumps)



These spas require clearance in both the front and the rear of the spa.

- Diamond series
- Fitness series
- R890B (with three pumps)



Top View of Spa Frame on Concrete Slab

Not to scale

Electrical Service Stub-up

The location of the electrical service cable is a decision each spa owner needs to decide. Running the electrical cable lay on top of the slab is visually unappealling and can present a trip hazard.

Most spa owners prefer to bury electrical conduit before the slab is laid and run the cable up through the slab. The location of the conduit in the concrete slab is called the stub-up.

You will need to have a contractor lay down a concrete slab before the spa is delivered (as described on page 2). The stub-up needs to be located directly next to the cabinet as shown in the figures below.

The spa installer or electrician will need to drill a hole in the spa cabinet approximately 5” to 10” up from the concrete slab. This will be where the conduit will enter the spa equipment area.

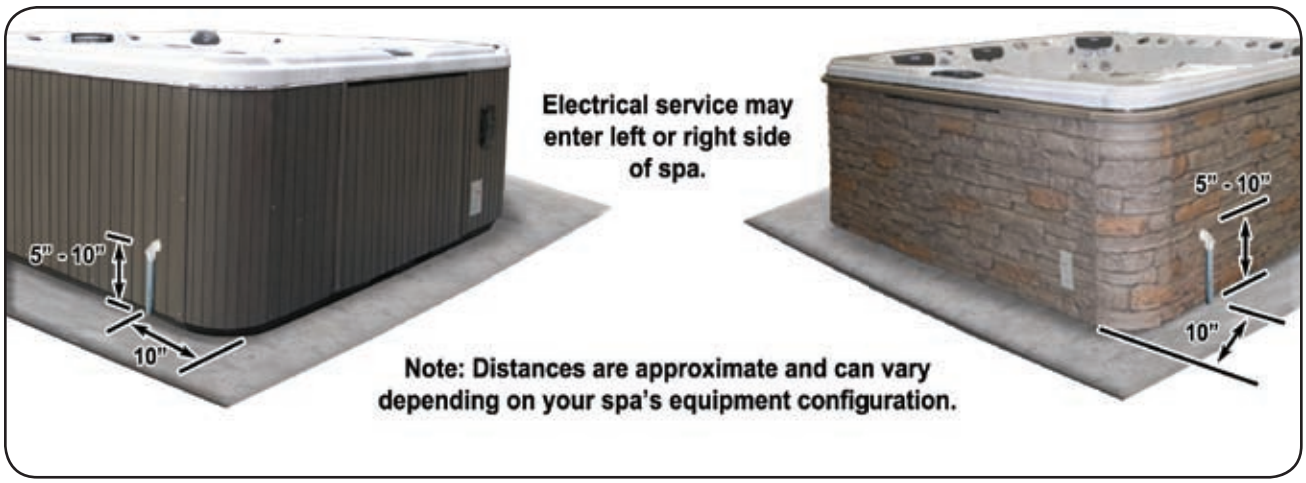
Use rigid pipe and a metal elbow outside the spa. You can use flex pipe inside the equipment area to run the electrical wire from the elbow to the control box.

Spas with Cal Preferred™ and Cal Stone™ Panels

This applies only to square and rectangular spas. If you have a round or triangular spa, see the next page.

The stub-up for should be approximately 10” back from the front of the spa and no higher than 10” above the concrete slab. It can be placed on either the left or right side of the spa.

Note: The swim spa F1770 requires TWO stub ups: one for the front end and a second for back end. They can be placed on either the left or right side as shown below.



Hiding the Stub-up

Some spa owners prefer to locate the stub-up inside the spa cabinet. While this is certainly an option for providing electrical service to your spa, we can not provide the location of the stub-up for your particular spa model. Cal Spas manufactures a large number of different spa models, each with different options and configurations.

If you want to hide the stub-up inside the cabinet, you will have to wait until it is delivered to determine the best location where it will not interfere with the spa equipment.

Spas with Hercules™ Cabinet

This applies only to spas with Hercules™ cabinet.

The stub-up needs to be located exactly between the two side panels as shown in the figure below. It needs to be located exactly between the two panels, measuring 42” from the front for 84” spas and 46.5” from the front for 93” spas.

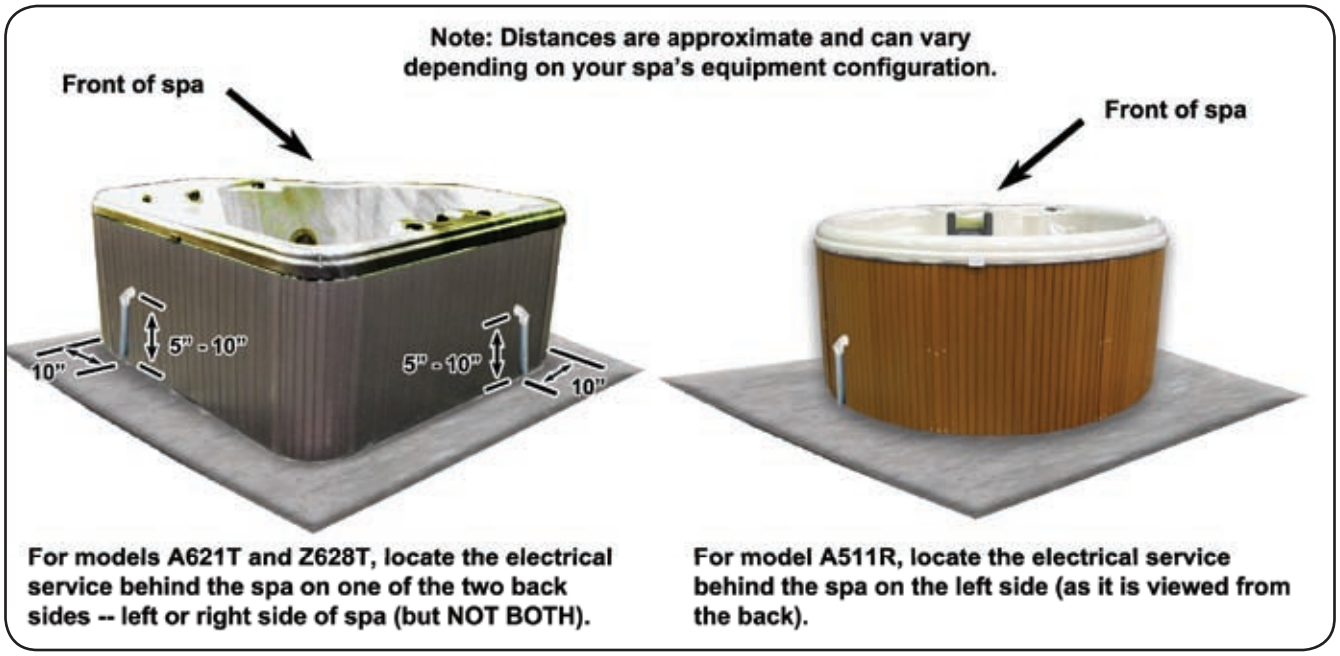
It should be no higher than 10” above the concrete slab. It can be placed on either the left or right side of the spa.



Triangular and Round Spas

The stub-up for triangular spas can be hidden behind the corner on one side. It can be seen only when you face the rear of the spa (as shown in the figure below). The stub-up should be approximately 10” back from the front of the spa and no higher than 10” above the concrete slab. It can be placed on either the left or right side of the spa.

The stub-up for round spas can be hidden slightly behind the curvature of the spa on the left side (as it is viewed from the back). The stub-up should be no higher than 10” above the concrete slab.



Getting the Spa Into Your Yard

Check the Dimensions of Your New Spa

The specification chart on page 13 lists your spa's model and its dimension as it sits on the delivery cart. During delivery, the spa must remain on the delivery cart at all times. Compare the dimensions to the width of the gates, sidewalks, and doorways along the delivery route. It may be necessary for you to remove a gate or partially remove a fence in order to provide an unobstructed passageway to the installation location.

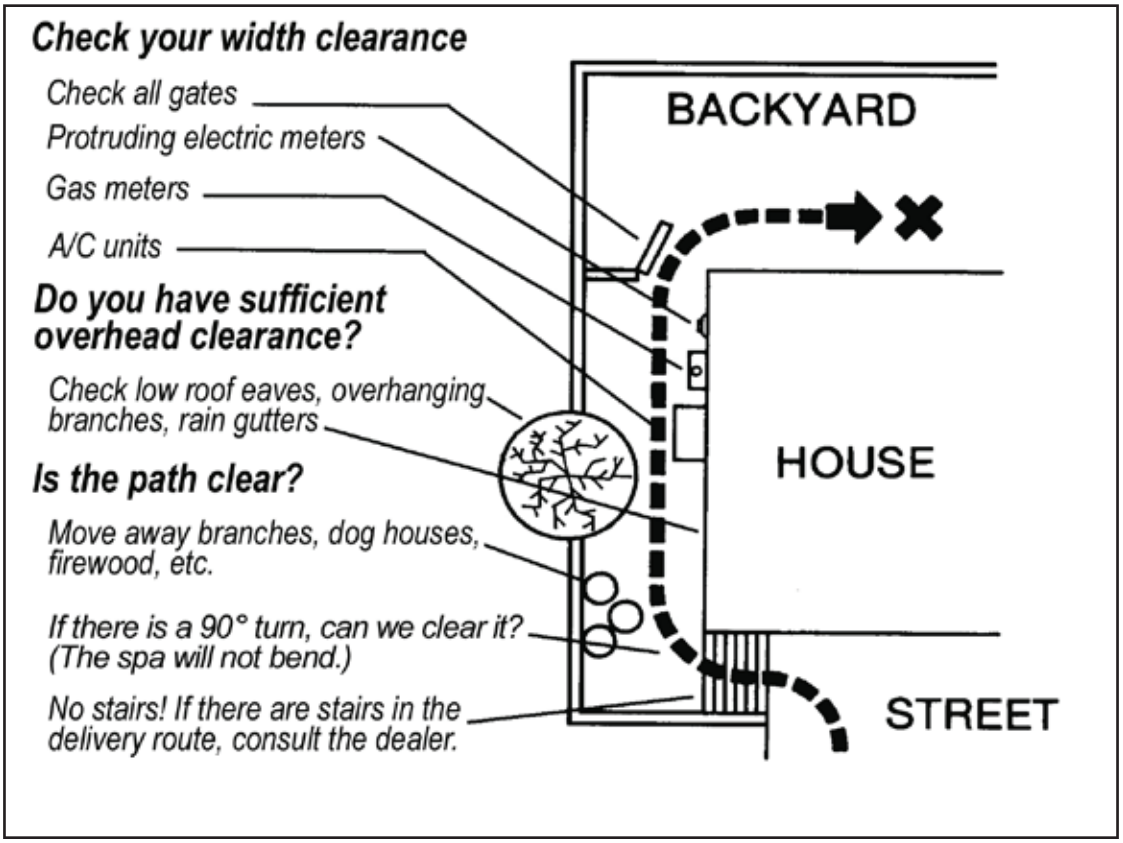
Plan the Delivery Route

Consider the following when planning your delivery route:

- Check the width of gates, doors and sidewalks to make sure your spa will pass through unobstructed. You may have to remove a gate or part of a fence to allow for adequate width clearance.
- Are there low roof eaves, overhanging branches or rain gutters that could be an obstruction to overhead clearance?
- 8' spas need at least 42" wide gate and 9' height clearance.
- If the delivery route will require a 90º turn, check the measurements at the turn to ensure the spa will fit.
- Are there protruding gas meters, water meters or A/C units on your home which will cause obstructions along the delivery path to your yard?
- Are there stairs in your delivery route? If so, you must consult your Cal Spas dealer prior to delivery to make adequate preparations.

Special Circumstances

The use of a crane for delivery and installation may become necessary if you are unable to provide an adequate delivery route. It is used primarily to avoid injury to your spa, your property or to delivery personnel. Your Cal Spas dealer may be able to assist you with the arrangements. If your spa delivery requires the use of a crane, the cost of a crane is generally not included in the standard delivery service.



Electrical Requirements

240 Volt Electrical Installation

All 240V spas must be permanently connected (hard wired) to the power supply. See the wiring diagram on page 10.

These instructions describe the only acceptable electrical wiring procedure. Spas wired in any other way will void your warranty and may result in serious injury.

When installed in the United States, the electrical wiring of this spa must meet the requirements of NEC 70 and any applicable local, state, and federal codes.

The electrical circuit must be installed by an electrical contractor and approved by a local building or electrical inspector.

Failure to comply with state and local codes may result in fire or personal injury and will be the sole responsibility of the spa owner.

The power supplied to the spa must be on a dedicated GFCI protected circuit as required by NEC 70 with no other appliances or lights sharing the power.

Use copper wire with THHN insulation. Do not use aluminum wire.

Use the table on the next page to determine your GFCI and wiring requirements.

Wire runs over 85 feet must increase wire gauge to the next lower number. For example: A normal 50 amp GFCI with four #6 AWG copper wires run over 85 feet would require you to go to four #4 AWG copper wires.

GFCI and Wiring Requirements

Single voltage systems (except Ultimate Fitness -- see next page)

Control System	GFCI Required	Wires Required
VS300	One 40 amp GFCI	Four #8 AWG copper wires
9800 (except Ultimate Fitness spas - see next page)	One 50 amp GFCI	Four #6 AWG copper wires
VS513Z	One 50 amp GFCI	Four #6 AWG copper wires
BP2000	One 60 amp GFCI	Four #6 AWG copper wires

Dual voltage system

The 5100DV control system is set at the factory to run on the low power setting for 40 amp operation. This is the default setting. Spa owners can have their installer change this setting so the spa will run on high power for 50 amp operation. ***See configuration instructions on page 11.***

Warning: Never set a spa to run on high power without installing a properly rated GFCI.

Control System	Default setting	Power Setting	GFCI Required	Wires Required
5100DV	►	Power saver mode **Factory default**	One 40 amp GFCI	Four #8 AWG copper wires
		High power setting ***See configuration instructions on page 11.***	One 50 amp GFCI	Four #6 AWG copper wires

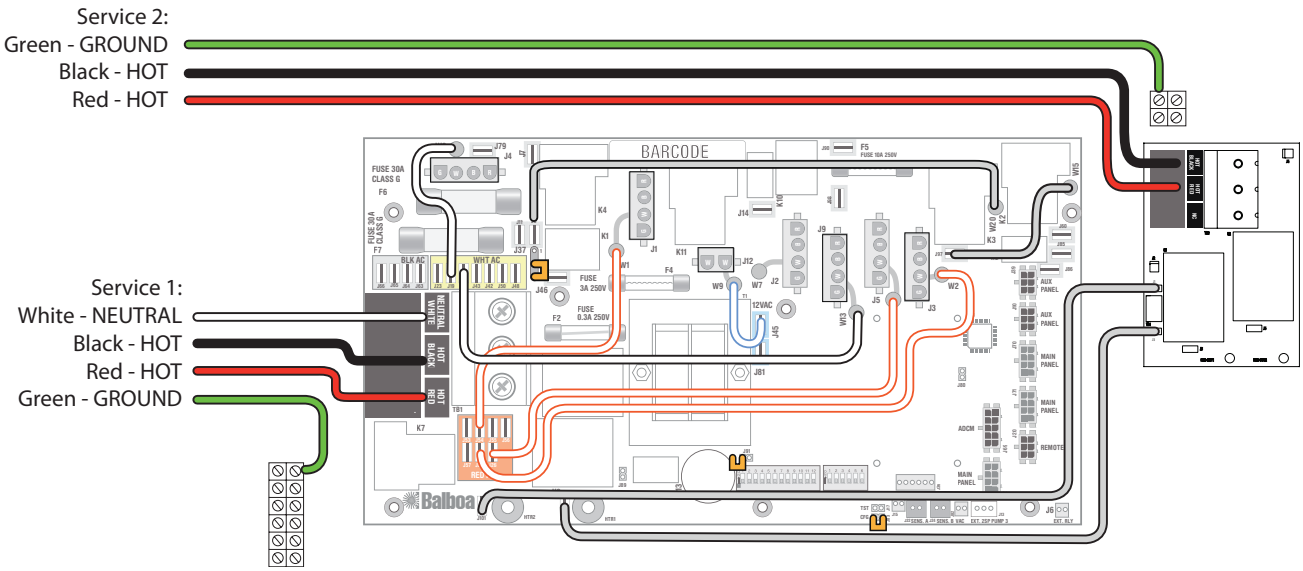
Ultimate Fitness Spas

Spa Model		GFCI Required	Wires Required	GFCI Required	Wires Required
		Standard configuration (5.5 kW heater)		Configuration for Option 499 (11 kW heater) and Option 157 (swim jets with Speck pump)	
F1418	Service 1	One 40 amp GFCI	Four #8 AWG copper wires	One 40 amp GFCI	Four #8 AWG copper wires
	Service 2	N/A	N/A	One 30 amp GFCI	Three #8 AWG copper wires
F1239 F1249	Service 1	One 50 amp GFCI	Four #8 AWG copper wires	One 60 amp GFCI	Four #8 AWG copper wires
	Service 2	N/A	N/A	One 30 amp GFCI	Three #8 AWG copper wires
F1640	Service 1	One 60 amp GFCI	Four #8 AWG copper wires	One 60 amp GFCI	Four #8 AWG copper wires
	Service 2	N/A	N/A	One 30 amp GFCI	Three #8 AWG copper wires
F1770	Service 1 (swim side)	One 60 amp GFCI	Four #8 AWG copper wires	One 60 amp GFCI	Four #8 AWG copper wires
	Service 2 (swim side)	N/A	N/A	One 30 amp GFCI	Three #8 AWG copper wires
	Service 3 (spa side)	One 40 amp GFCI	Four #8 AWG copper wires	One 40 amp GFCI	Four #8 AWG copper wires

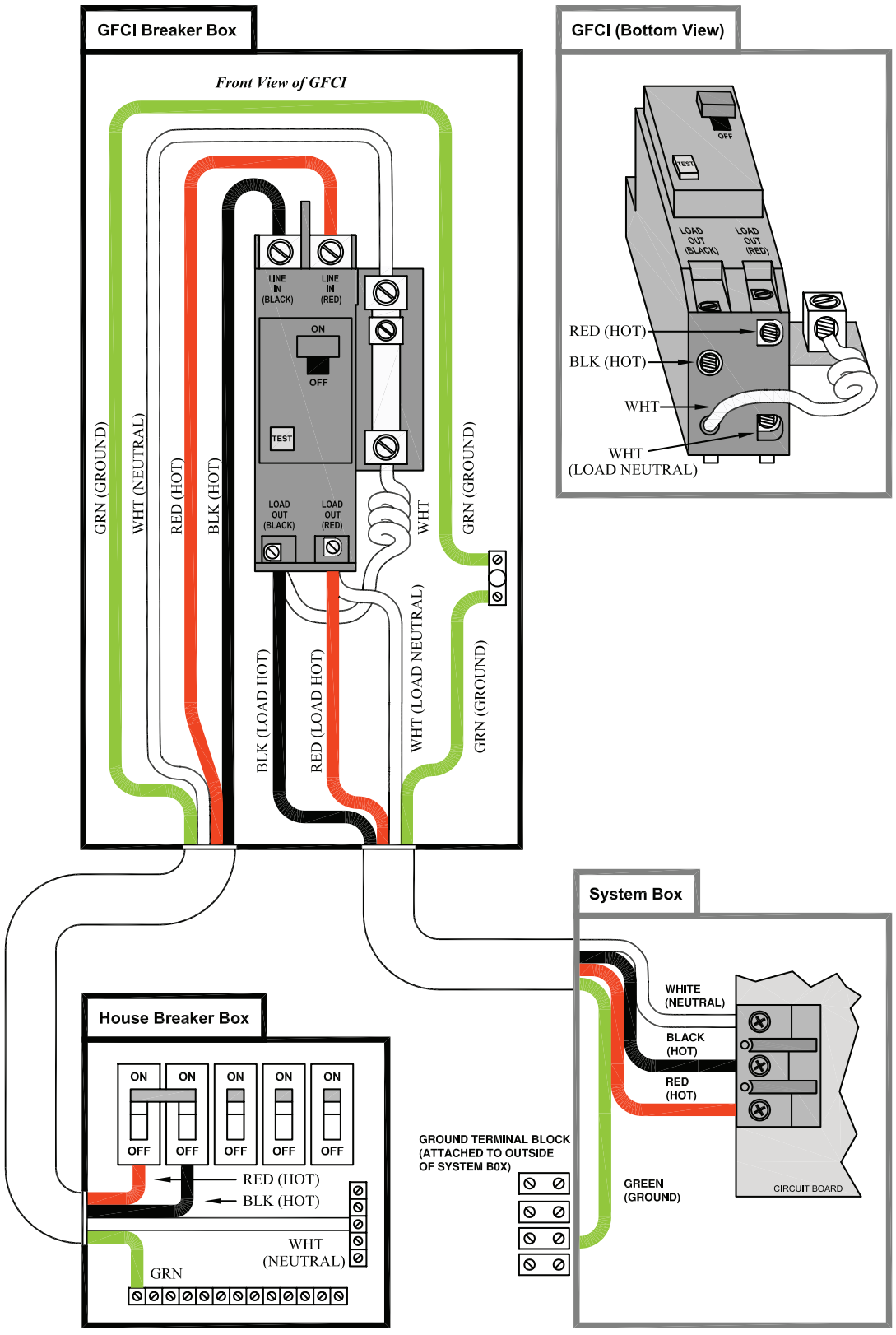
Electrical Installation for 11 kW Heater

This applies to Fitness spas with the 11 kW heater only.

Two electrical services are required to heat the swim side of the Fitness Spa.



GFCI Wiring Diagram



High Power Configuration

DIP Switch Definitions for 5100DV system

OFF Position (Down)		ON Position (Up)
Test Mode OFF	◀ **A1**	Test mode (normally OFF)
Standard / Economy / Sleep Mode changes allowed	◀ **A2**	Standard Mode only
Use Digital Duplex or Light Duplex plane	◀ **A3**	Use Mini Panel
Pump 2 enabled	◀ **A4**	Pump 2 disabled
Single voltage heating (240VAC only)	**A5** ▶	Dual voltage heating enabled
Safety Suction (must be OFF)	◀ **A6**	
See table at right	**A7** ▶	See table at right
Temperature displayed in Fahrenheit	◀ **A8**	Temperature displayed in Celsius
No circ pump; Pump 1 is two-speed	◀ **A9**	Circ pump acts like Pump 1 low speed (filter cycle, polling); Pump 1 is one-speed
See table at right	◀ **A10**	See table at right

Note: Arrow indicates factory default setting.

Number of high speed pumps that can be run before heater is disabled (A5 OFF)

OR

before heater runs at 120VAC (A5 ON)

No. of Pumps	A7	A10
0	OFF	OFF
1	ON	OFF
2	OFF	ON
3	ON	ON

Testing the GFCI Breaker

Test the GFCI plug prior to first use and periodically when the spa is powered. To test the GFCI plug version, follow these instructions. (Spa should already be plugged in and operational.)

1. Press the TEST button on the GFCI. The GFCI will trip and the spa will stop operating.
2. Press the RESET button on the GFCI. The GFCI will reset and the spa will turn back on.

The spa is now safe to use.

120 Volt Electrical Installation

Always follow applicable local, state and federal codes and guidelines.

Use only a dedicated electrical line with a 15-amp breaker.

Cord-and-plug connections may not use a cord longer than 15 ft (4.6 m) and must be plugged into a dedicated 15-amp GFCI connection. Do not use extension cords!

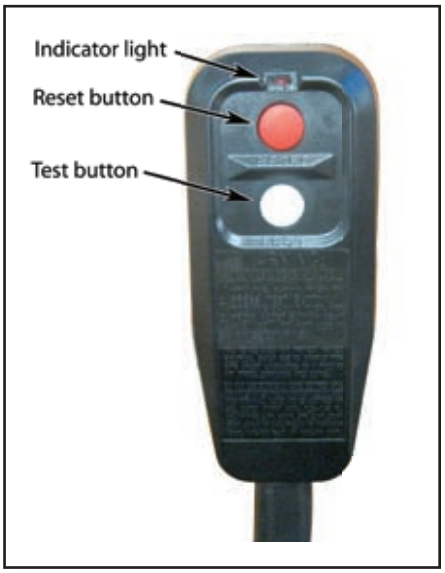
Always use a weatherproof-covered receptacle.

Receptacle shall be located not less than 5 ft (1.5 m) from and not exceeding 10 ft (3.0 m) from the inside wall of the spa.

Do not bury the power cord.

If your cord becomes damaged, replace it before next usage.

All 120V spas must have a GFCI. This can be either a 15-amp GFCI receptacle or a GFCI cord and plug kit as shown below (CKIT110 - P/N ELE09700086).



Spa Technical Specifications

All sizes on this chart represent outside dimensions. Due to our continuous improvements, specifications, size and pricing are subject to change without prior notice.

Imperial Units

For spa specifications in metric units, see page 15.

Aqua Series

Model	Width (inches)	Length (inches)	Height (inches)	Capacity (gallons)	Dry Weight (pounds)	Filled Weight (pounds)
A511R	78	Round	36	300	350	2850
A621T	72	72	35	130	600	1685
A730B	84	84	35	425	800	4340
A730L	84	84	35	425	800	4340
A750L	84	84	35	425	800	4340
A750B	84	84	35	425	800	4340
A830L	93	93	35	450	900	4650
A830B	93	93	35	450	900	4650
A850L	93	93	35	450	900	4650
A850B	93	93	35	450	900	4650

Connect Series

Model	Width (inches)	Length (inches)	Height (inches)	Capacity (gallons)	Dry Weight (pounds)	Filled Weight (pounds)
C736L	84	84	35	425	800	4340
C736B	84	84	35	425	800	4340
C836L	93	93	35	450	900	4650
C836B	93	93	35	450	900	4650

Diamond Series

Model	Width (inches)	Length (inches)	Height (inches)	Capacity (gallons)	Dry Weight (pounds)	Filled Weight (pounds)
DI760B	84	84	39.5	425	850	4390
DI760L	84	84	39.5	425	850	4390
DI780B	84	84	39.5	425	850	4390
DI780L	84	84	39.5	425	850	4390
DI860B	93	93	39.5	450	900	4650
DI860L	93	93	39.5	450	900	4650
DI880B	93	93	39.5	450	900	4650
DI880L	93	93	39.5	450	900	4650
DI970A	93	130	39.5	800	1200	7865
DI970N	93	130	39.5	800	1200	7865

Imperial Units (cont.)

Escape Series						
Model	Width (inches)	Length (inches)	Height (inches)	Capacity (gallons)	Dry Weight (pounds)	Filled Weight (pounds)
ES734B	84	84	39.5	425	800	4340
ES734L	84	84	39.5	425	800	4340
ES750B	84	84	39.5	425	800	4340
ES750L	84	84	39.5	425	800	4340
ES850B	93	93	39.5	450	900	4650
ES850L	93	93	39.5	450	900	4650
ES861B	93	93	39.5	450	900	4650
ES861L	93	93	39.5	450	900	4650
ES864B	93	93	39.5	450	900	4650
ES864L	93	93	39.5	450	900	4650
ES938L	93	130	39.5	800	1200	7865
ES947E	93	138	39.5	900	1250	8750

Resort Series						
Model	Width (inches)	Length (inches)	Height (inches)	Capacity (gallons)	Dry Weight (pounds)	Filled Weight (pounds)
R862	93	93	35	450	900	4650
R890B	90	90	35	450	900	4650
R890L	90	90	35	450	900	4650

Xtream Series						
Model	Width (inches)	Length (inches)	Height (inches)	Capacity (gallons)	Dry Weight (pounds)	Filled Weight (pounds)
X750B	91	91	35	425	800	4340
X750L	91	91	35	425	800	4340
X770B	91	91	35	425	800	4340
X770L	91	91	35	425	800	4340

Ultimate Fitness Series						
Model	Width (inches)	Length (inches)	Height (inches)	Capacity (gallons)	Dry Weight (pounds)	Filled Weight (pounds)
F1239	93	167	51	2000	1600	18260
F1418-II	93	141	51	1500	1600	14095
F1439-II	93	171	51	1800	1800	16795
F1640	93	200	51	2500	2000	22825
F1770	93	200	51	2000 (swim side) 285 (spa side)	2950	21985

Imperial Units (cont.)

Zone Series						
Model	Width (inches)	Length (inches)	Height (inches)	Capacity (gallons)	Dry Weight (pounds)	Filled Weight (pounds)
Z522L	54	78	32	125	430	1470
Z536L	64	84	32	226	535	2420
Z628T	72	72	34	130	600	1685
Z630B	76	84	34	325	735	3445
Z630L	78	84	32	340	740	3575

Metric Units

Aqua Series						
Model	Width (cm)	Length (cm)	Height (cm)	Capacity (liters)	Dry Weight (kg)	Filled Weight (kg)
A511R	198	Round	91	1134	159	1293
A621T	183	183	89	491	272	764
A730B	213	213	89	1607	363	1970
A730L	213	213	89	1607	363	1970
A750L	213	213	89	1607	363	1970
A750B	213	213	89	1607	363	1970
A830L	236	236	89	1701	409	2110
A830B	236	236	89	1701	409	2110
A850L	236	236	89	1701	409	2110
A850B	236	236	89	1701	409	2110

Connect Series						
Model	Width (cm)	Length (cm)	Height (cm)	Capacity (liters)	Dry Weight (kg)	Filled Weight (kg)
C736L	213	213	89	1607	363	1970
C736B	213	213	89	1607	363	1970
C836L	236	236	89	1701	409	2110
C836B	236	236	89	1701	409	2110

Metric Units (cont.)

Diamond Series						
Model	Width (cm)	Length (cm)	Height (cm)	Capacity (liters)	Dry Weight (kg)	Filled Weight (kg)
DI760B	213	213	100	1607	386	1992
DI760L	213	213	100	1607	386	1992
DI780B	213	213	100	1607	386	1992
DI780L	213	213	100	1607	386	1992
DI860B	236	236	100	1701	409	2110
DI860L	236	236	100	1701	409	2110
DI880B	236	236	100	1701	409	2110
DI880L	236	236	100	1701	409	2110
DI970A	236	330	100	3024	545	3569
DI970N	236	330	100	3024	545	3569

Escape Series						
Model	Width (cm)	Length (cm)	Height (cm)	Capacity (liters)	Dry Weight (kg)	Filled Weight (kg)
ES734B	213	213	100	1607	363	1970
ES734L	213	213	100	1607	363	1970
ES750B	213	213	100	1607	363	1970
ES750L	213	213	100	1607	363	1970
ES850B	236	236	100	1701	409	2110
ES850L	236	236	100	1701	409	2110
ES861B	236	236	100	1701	409	2110
ES861L	236	236	100	1701	409	2110
ES864B	236	236	100	1701	409	2110
ES864L	236	236	100	1701	409	2110
ES938L	236	330	100	3024	545	3569
ES947E	236	351	100	3402	568	3970

Resort Series						
Model	Width (cm)	Length (cm)	Height (cm)	Capacity (liters)	Dry Weight (kg)	Filled Weight (kg)
R862	236	236	89	1701	409	2110
R890B	229	229	89	1701	409	2110
R890L	229	229	89	1701	409	2110

Metric Units (cont.)

Xtream Series						
Model	Width (cm)	Length (cm)	Height (cm)	Capacity (liters)	Dry Weight (kg)	Filled Weight (kg)
X750B	231	231	89	1607	363	1970
X750L	231	231	89	1607	363	1970
X770B	231	231	89	1607	363	1970
X770L	231	231	89	1607	363	1970

Ultimate Fitness Series						
Model	Width (cm)	Length (cm)	Height (cm)	Capacity (liters)	Dry Weight (kg)	Filled Weight (kg)
F1239	236	424	130	7560	726	8286
F1418-II	236	358	130	5670	726	6396
F1439-II	236	434	130	6804	817	7621
F1640	236	508	130	9450	908	10358
F1770	236	508	130	7560 (swim side) 1077 (spa side)	1339	8899

Zone Series						
Model	Width (cm)	Length (cm)	Height (cm)	Capacity (liters)	Dry Weight (kg)	Filled Weight (kg)
Z522L	137	198	81	473	195	668
Z536L	163	213	81	854	243	1097
Z628T	183	183	86	491	272	764
Z630B	193	213	86	1229	334	1562
Z630L	198	213	81	1285	336	1621



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