

Complete Guide to Selecting Constructing & Managing a Liner Pool



*SPATA Gold,
Silver and
Bronze Award
Winners for
Self Build Pools*

Complete Guide to **Selecting Constructing and Managing a Liner Pool**

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If at any time you are uncertain about any technical information or procedures, please do not hesitate to contact All Swim on 0800 0268415.

The authors and their agents accept no responsibility for any injury or action arising from the use of these instructions.

All technical information in this guide is correct at time of print.

Why Buy a Swimming Pool

Year after year we promise ourselves more leisure time as well as more time spent with the family - we rarely achieve it. The pace of modern life is so fast that it's easy to neglect these things and that's why one of the best ways to make the most of this valued time is to add a swimming pool to your garden. Pools are no longer a luxury purchase and are readily available in a vast range of designs at affordable prices. Just imagine how much fun your children would have splashing around with their friends, or how much you and your family would enjoy swimming in the privacy of your own back garden.

Can I Build it Myself?

Quite simply yes - An All Swim liner pool kit is within the scope and ability of an average D-I-Y person. However, many customers use a local bricklayer for the actual building and rendering of the pool walls. At All Swim we are available at all stages of construction to extend our help and advice and can assure our prospective D-I-Y customer that the installation is not difficult.

Do I Need Planning Permission?

The majority of authorities do not insist on planning permission for the building of a private swimming pool in the back garden of a domestic property in the U.K. However, if you are thinking of erecting an enclosure over the pool, then permission is required and you are advised to consult your local authority before commencement.

Even though planning permission is not normally required All Swim recommend that you contact your local authority before commencement of any work in order to check the requirements of local legislation.

What Size Pool Should I Buy?

The size of pool you choose is related to the area available in your garden as well as any budgetary constraints. However, we find the most popular size of pool is 30' x 14' (9.0m x 4.3m). When deciding on a pool size you will need to consider such points as - access for heavy machinery, underground cables and pipes, overhead telephone and electricity wires, the water table and ground structure. When choosing the depth of your pool it is worth bearing in mind, that the water level is normally kept half way up the skimmer - which is approximately 4" from the top of the pool wall. Therefore, in a 4ft. (1.2m) deep pool, the water depth is only 3' 8" (1.1m).

Should I Buy a D-I-Y Kit or Have the Pool Installed?

This is your own choice but there is normally quite a difference in the ultimate cost. As mentioned previously the installation is not difficult and All Swim support staff are there to give help and advice every step of the way.

Why Choose a Liner Pool?

Liner pools have opened up the possibility of pool ownership to a greater number of homeowners and such are the advances in liner materials and construction techniques that, in many cases, it is difficult to tell the difference between a liner and concrete pool - only the cheaper price tag gives it away! It is therefore, not surprising a high percentage of domestic in-ground pools are liner pools, especially as each year sees many additions to the options for plain or patterned liners. Even if damaged, a liner pool can be repaired under water and the liner itself may not need replacing for up to 10 years; but when it does finally become necessary, you can transform the pool completely with a new pattern or colour. However, if a concrete pool is still preferred, please contact us for our comprehensive pool kit guide and price list.

D-I-Y: Briefly - What is Involved

A pool is dug out either by a mechanical excavator or by hand, to the dimensions given in the booklet. A concrete foundation 15" wide x 6" (380mm x 150mm deep) is laid around the perimeter of the pool on which the pool walls are built. The pool walls are made out of 18" x 9" x 4" (455 x 228 x 100mm) solid concrete blocks laid to a height of 3'6" (1.07m) for Hopper and Constant Slope pools (9 courses laid on their flat) and 4'2" (1.28m) for Constant Depth pools (11 courses laid on their flat). On completion of the walls they are rendered with a thin skim of sand/cement to present a smooth face to the liner. A special extrusion is fitted to the top of the wall into which the pool liner is clipped. A 2" (50 mm) layer of sand/cement is screeded to create the pool floor. When the pool shell is complete the liner is fitted and filling commenced.

What is Supplied in The Kit?

An All Swim Do-It-Yourself swimming pool kit includes the rapid sand filter and a correctly sized swimming pool self priming pump, liner, linerlock, skimmer(s), main drain, return inlet(s), low suction, pipework, valves and sufficient plumbing fittings to position the filter within ten feet of the pool, multi-water test kit, pool maintenance kit and initial chemicals. What we do not provide are the basic building materials such as cement, sand, chippings, concrete blocks or reinforcing bar, however, all these materials are obtainable locally from a builders' merchants and are detailed below.

For detailed contents of All Swim Pool Kits please consult the current liner pool kit price list.

Note: All Swim D-I-Y pool kits comply with the latest S.P.A.T.A standards (The Swimming Pool and Allied Trade Association) relating to the supply of D-I-Y pool kits: - SPATA is the nationally recognised organisation, which sets the standards within the swimming pool industry and ensures that member companies maintain those standards providing the customer with the highest quality of product and service. Members trade under a code of ethics offering customers both formal safeguards and the peace of mind essential when you want to place an order. All members are carefully vetted on application and must have at least three years proven experience in the industry. Member's work is periodically inspected to ensure that they comply with SPATA standards and are able to maintain the quality of work expected of them.

Table of Materials
Required

18' x 9'	20' x 10'	24' x 12'	24' x 12'	24' x 12'	28' x 14'	30' x 14'	32' x 16'	38' x 16'	40' x 20'
5.5m x 2.8m	6.0m x 3m	7.3m x 3.7m	7.3m x 3.7m	8.5m x 4.3m	9.0m x 4.3m	10m x 5m	11.5m x 5.0m	11.5m x 5.0m	12.2m x 6.0m
4' (1.2m)	4' (1.2m)	4' (1.2m)	4' (1.2m)	3' 4"-5' 3"	3' 4"-6' 0"	3' 4"-6' 0"	3' 4"-6' 9"	3' 4"-7' 6"	3' 4"-7' 6"
Constant	Constant	Constant	Constant	1-1.6m	1-1.8m	1-1.8m	1-2.1m	1-2.3m	1-2.3m
Depth	Depth	Depth	Depth	Deep	Deep	Deep	Deep	Deep	Deep
420	462	550	466	541	566	615	690	765	
BLOCKS 455 x 228 x 100mm 18" x 9" x 4"									
15mm Reinforcing Bar	37mtrs	43mtrs	49mtrs	49mtrs	55mtrs	61mtrs	67mtrs	74mtrs	79mtrs
Concrete for footings	1.2Cm	1.3Cm	1.5Cm	1.5Cm	1.75Cm	1.83Cm	2.0Cm	2.25Cm	2.5Cm
Chippings for Backfill	4 1/2 tonnes	5 tonnes	6 tonnes	5 tonnes	6 tonnes	6 1/2 tonnes	7 tonnes	7 1/2 tonnes	8 tonnes
Sand for Walls and Floor	3 tonnes	3 1/2 tonnes	4 tonnes	4 tonnes	5 tonnes	6 tonnes	7 tonnes	8 tonnes	9 tonnes
Bags of 25kg Cement	28	32	36	32	40	41	50	56	60

Indoor Pools

More and more of our customers decide to build their pools indoors giving a truly all year round swimming experience. All Swim can supply all the technical expertise and specialist equipment for indoor pool construction - If you are considering an indoor pool please ask for our indoor pool literature pack.

Delivery

The basic pool kit is normally despatched free of charge within 3 working days (UK mainland only). However, coping stones, heating systems and liners are sent direct from the manufacturer and usually take approximately 14 days. All customers are notified of approximate delivery dates upon receipt of order.

Location of a Pool

Once you have decided to invest in a swimming pool, the next decision is where to position it, and as always there are a few points to consider –

- (a) The pool should be positioned away from trees so that it benefits from the sun as much as possible. A pool located in a suntrap not only helps keep the bathers warm but will also help cut heating costs. It also has the advantage that it will help to reduce the amount of work required during the autumn months.
- (b) The proximity of the house for entertaining, changing facilities, toilets and electrical services.
- (c) The filtration plant will require housing as well as an electrical supply - sometimes an existing building can be utilised.
- (d) Availability of water supply - usually a garden hose to the nearest outside tap is all that is required.
- (e) The provision of a sitting area at the shallow end of the pool.
- (f) It is also preferable to have pedestrian access to the pool at the shallow end.
- (g) Shelter from the wind.
- (h) If a gas, electric heater or heat pump is used the cost of electrical or gas connections must also be considered.

Running Costs

Today's pools when properly looked after, need never be emptied, except in the event of the need for major repair work.

Once the pool has been commissioned for the season, the pool water must be regularly treated to maintain chemical, physical and biological standards, whilst minimising the risk of damage to pool fittings and equipment. There is a wide choice of water treatment products available to help maintain pool water safely and easily, many of which are also environmentally friendly. Taking an average 30' x 14' (9m x 4.3m) (10,000 gallon) (45460 lts) pool, the cost of chemicals would be as little as £150 - £200 for a full year. With experience, and the help of modern technology and products, pool maintenance should take only 20-30 minutes each week in the summer. Off-season, a pool, which has been professionally closed down, may only need one or two checks during the winter months.

To help you in the running of your pool, All Swim supplies a complete guide to pool water care with all pool kits.

Optional Extras

When building a swimming pool it is important to consider the optional extras available, as in some instances once the pool is built these products can then only be installed with a great deal of effort and extra expense. Some products to consider are:- Diving Boards, Slides, Counter Current Systems, Heating, Step Units, Foam Underlay, Underwater Lighting, Autoleveller, Automatic Cover and 12" (305mm) Deluxe Coping Stones. These products are covered here and also in more detail in our supplementary leaflet, but if you require further information, please don't hesitate to contact us.

Diving Boards

Diving boards add to the enjoyment of a pool but are not as popular as they used to be a few years ago. This is because the trend for home swimming pools has tended towards shallower, smaller pools in which more family games are played.

Note: If you are considering a diving board you must have a pool 32' x 16' (10m x 5m) or larger with a minimum water depth of 8'0" (2.45m), also if you decide you wish to dive in the pool then the following rules must be followed - All pools that have a water depth of less than 4.9' (1.5 metres) are deemed to be non-diving, where the depth in the deep end is between 4.9' (1.5 metres) and 7' (2.13 metres) only diving off the side of the pool, up to a freeboard of 6" (152mm) is to be permitted. In this case no diving board can be fitted but the diving point must be clearly marked on the paving or coping above the deep end wall. Therefore, diving must only take place from the diving point. Where the water depth in the deep end is 7' (2.13 metres) or greater a diving board can be fitted but the diving point must be clearly defined.

For further information on installing a diving board please contact us for the latest recommendations.

Slides

Pool slides are becoming more popular as not only do they give more fun to all the family they only require a 3' (0.9m) water depth. They are available either straight or curved and come fitted with water jets to enhance the fun!

Exercise Swimming

Swimmers who want a pool for exercise should enquire about counter current swimming units. These units produce an adjustable current of water to swim against enabling a long swim to be carried out in a small pool; this system is gaining rapid popularity with all ages.

Pool Heating

Heating a pool is not as expensive as most people imagine, the use of a solar blanket without any other form of heating can raise the pool temperature by as much as 10 degrees Fahrenheit in the summer and must be considered to be a basic component of any pool. However, to obtain the maximum and most pleasurable use of your pool, we would recommend the installation of a pool heating system, there are three systems available that All Swim would recommend:

- (a) A Heat Exchanger working from the domestic heating boiler
- (b) An independent Pool Heater
- (c) Calorex Heat Pump

Heat Exchanger System

This is a simple system using a stainless steel heat exchanger, which utilises the domestic heating system. The return to the pool flows through the heat exchanger whilst the primary flow and return are run from the domestic heating boiler. The pool water connections to the heat exchanger are made with high temperature unions and a thermostat inserted into the heat exchanger is linked to a motorised valve, this then controls the pool water temperature. It is necessary with this system to keep the high temperature primary flow and return mains as short as possible in order to prevent high heat losses.

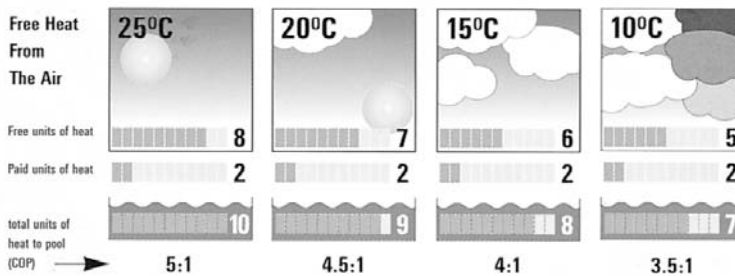
This system has the advantage of being the lowest capital cost system for pool heating, however, your existing boiler's output must be sufficient for the pool size chosen. For boiler requirements please refer to All Swim's current product catalogue.

Independent Pool Heater

Oil or gas fired heaters are normally used when the pool is either too far away from the house for the central heating boiler to be utilised, or when the output required is greater than the existing domestic boiler. Electric heaters can be used when oil and gas are not available but this type of heating has a comparatively high running cost.

Calorex Heat Pump

Calorex heat pumps are designed for maximum efficiency by making use of dormant heat within the outside air. A heat pump takes full advantage of this heat and upgrades it substantially before transferring it to the pool water. The illustration shows typical ratios between heat output and input at various temperatures.



Sunshine is not essential for this system as all it needs is air; A heat pump can work with air temperatures as low as -15 degrees centigrade (dependent on the model chosen) and then becomes more efficient as the temperature increases.

A heat pump can be sited inside a filter house with adequate ventilation or outside on a concrete plinth adjacent to it. Only basic electrical work and simple plumbing connections are required to connect the unit to the return pipework after the filter.

The capital cost of this system is comparable to that of a boiler installation, however, once installed this system provides pool owners with the pool temperature they want with an economical running cost.

Note: A suitably qualified engineer must carry out any work associated with the heating of your pool.

Roman End Steps

Roman End step units are constructed from Fibreglass or Rovel with non-slip treads, they can be supplied all white or as a deluxe version with a real mosaic tile band.

A Roman End enhances the appearance of any pool and is excellent for younger children who enjoy paddling on the shallow steps as well as offering ease of access for both adults and children. They are usually installed at the shallow end of the pool but if preferred can be installed on one side.

Square Steps

These are very similar to the Roman End, but normally smaller in size. These can be fitted to the end or side of all pool sizes, and provide the advantages of easy access and a pleasant variation from the orthodox rectangular pool.

Corner Steps

The final option is a corner step unit which as the name suggests is fitted to the corner of the pool, however, this unit must be fitted in the shallow end.

Pool Underlay

Swimming pool underlay has all the advantages you would expect when carpeting your own home. In other words, it offers the difference between hard concrete and a soft cushion. Swimming pool underlay will protect your pool liner from uneven screed and will also insulate your pool from underground heat loss.

Underwater Light

An underwater light certainly transforms a pool during the late evening. One light is sufficient for pools up to 28' x 14' (8.5m x 4.3m) but the larger pools do benefit from the use of two lights. Alternatively fibre optic lighting can create a stunning effect for a pool with both underwater and perimeter lighting systems available. There are six colour choices which can either be set on one colour or cycle through each colour at a chosen speed. This really does add an extra dimension to your swimming pool.

Autoleveller

An automatic pool water top up system which eliminates the need for manual top up from a hose pipe.

Automatic Pool Covers

Numerous types of automatic pool covers are now available which can add to the benefits of ease of use and safety to the pool area.

Coping Stones

A complete set of 9" (230mm) reconstituted Portland stone copings are included in your pool kit but we would recommend, except where space is very limited, that the deluxe 12" (305mm) coping be used as the extra fine finish and width will really set off the finish to your pool. Alternative finished edging stones in natural stone are also available.

Safety

Finally and most importantly you must always consider the safety aspects of your swimming pool, particularly when small children, non-swimmers, the elderly or pets are involved. If you have opted for a pool with a deep end it is imperative that all swimmers are aware of its start point and depth, it is recommended if a hopper pool has been chosen that the start of the deep end is visibly identified.

In order to make a pool as safe as possible it is recommended that it be supervised at all times. Also where possible -

- (a) Locate the pool close to the house and in full view of the kitchen window
- (b) Install a safety cover
- (c) Install safety fencing, with a fully lockable gate
- (d) Install preformed step units so if in the unfortunate event someone falls in, these shallower steps are an easier way out
- (e) Make available floating Lifebuoys

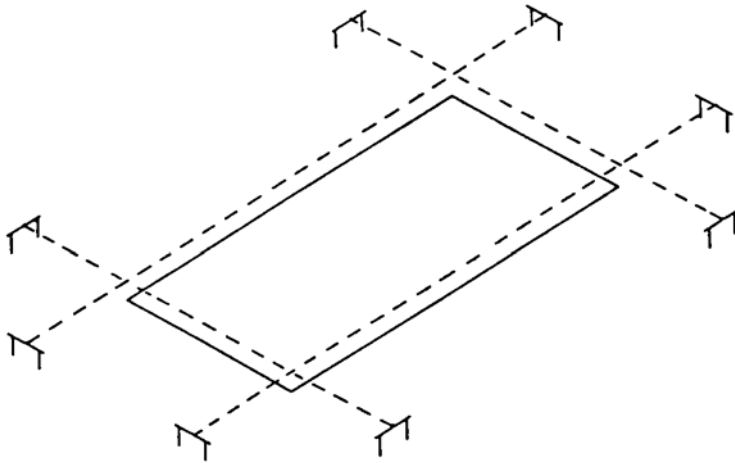
PREPARATION

Marking out the pool

Set the four corner pegs of the finished pool dimensions and ensure that the diagonals are equal. Position two profiles made from three short lengths of timber on each corner approximately 4' (1.2m) back from the excavation as per the diagram. When lines are stretched between nails on the top of each profile, the points of intersection are the corners of the pool, the diagonals must be exactly equal. The nails on the profiles are easily adjusted if required to form the perfect dimensions. This method has the advantage that these lines can be removed during digging, and easily replaced to give the exact position of the pool.

The lines can now be marked on the ground using lime or white cement to provide a readily visible guide for the digger operator. Run your hands along either side of the line and allow the powder to fall through onto the ground below. The excavation lines now need to be marked out at a distance 15" (380mm) beyond the pool's dimensions, thus forming in white, a double tram-line around the four sides of the rectangle. Check all excavation dimensions for the relevant pool size, measure and mark on the ground the hopper shape, shallow end line and all transition lines, remembering to mark out the Roman End if one is being fitted. **Make certain when marking out the pool that you are following the correct drawing, as there are two different floor profiles.** The hopper pool has a level shallow area for children and non-swimmers, whereas the constant slope pool is designed without a level shallow area.

Marking out the pool with profiles



The four corner pegs of the pool must form a rectangle with the diagonals equal.

The excavation size should be set out as follows:

Inside pool dimensions plus 2' 6" (762mm) on length and width, which will allow 15" (380mm) extra on all sides for the 9" (230mm) wall and 6" (150mm) backfilling.

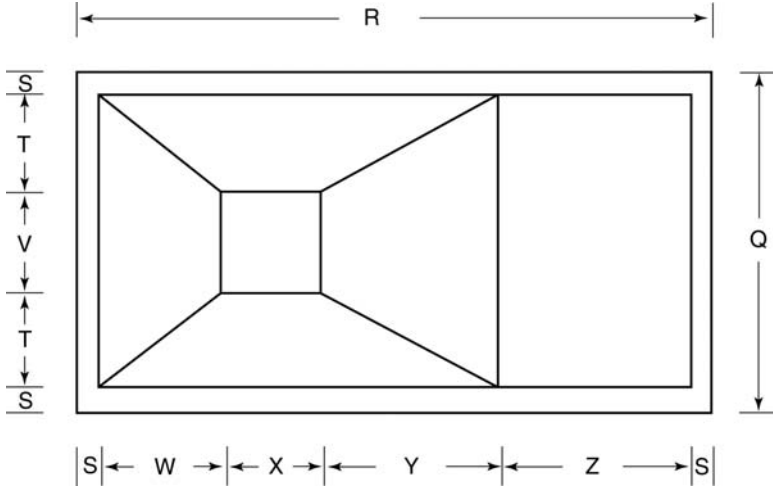
Datum Point

The ultimate top height of the pool is obviously very important, as it usually has to join an existing terrace or similar. This height is called the DATUM, and before digging the pool, drive a peg into the ground in an area close to the pool, which will remain undisturbed during operations. The top of this peg is the datum point, and all measurements are taken downwards from this point to determine the depth of digging. In the finished pool the datum point will be equivalent to the top of the coping stone.

Laser Level

The easiest and most accurate way of determining levels is by hiring a laser level from a local hire shop.

Excavation Dimensions – Hopper Pools



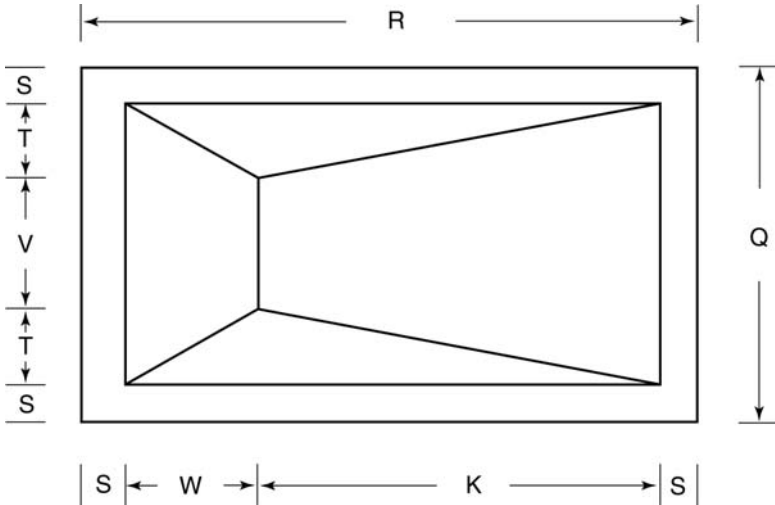
Hopper Pools

Excavation Dimensions Wall Depths 3' 6"

Size	Q	R	S	T	V	W	X	Y	Z	Hopper Depth
24'x 12'	14' 6"	26' 6"	1'3"	4'	4'	5'	4'	7'	8' 0"	5' 5"
28'x 14'	16' 6"	30' 6"	1'3"	5'	4'	5'	4'	9'	10' 0"	6' 2"
30'x 14'	16' 6"	32' 6"	1'3"	5'	4'	5'	4'	11'	10' 0"	6' 2"
32'x 16'	18' 6"	34' 6"	1'3"	6'	4'	5'	6'	11'	10' 0"	6' 11"
38'x 16'	18' 6"	40' 6"	1'3"	6'	4'	6'	6'	14'	12' 0"	7' 8"
40'x 20'	22' 6"	42' 6"	1'3"	7'	6'	6'	6'	16'	12' 0"	7' 8"

Note: Whilst these pool sizes are All Swim standard, non-standard pools can also be built. Please contact All Swim for further information and advice.

Excavation Dimensions – Constant Slope Pools



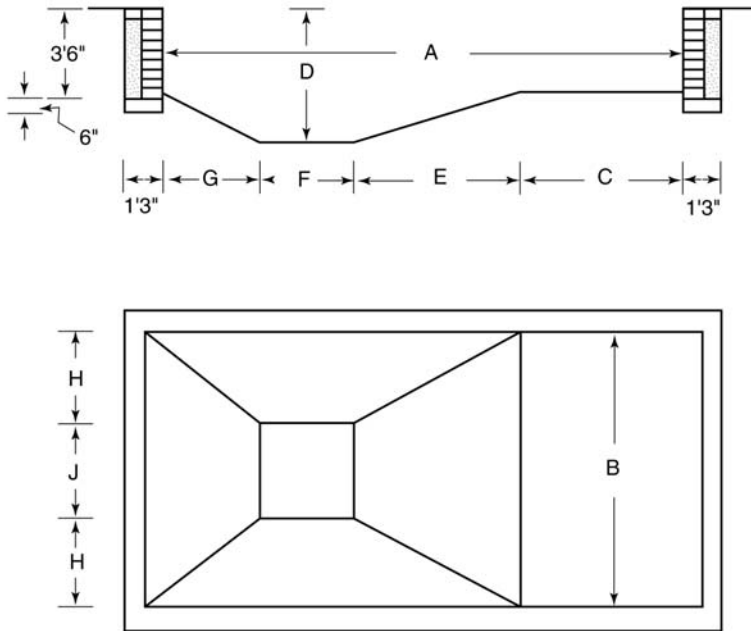
Constant Slope Pools

Excavation Dimensions Wall Depths 3' 6"

Size	Q	R	S	T	V	W	K	Depth at Deepest Point
24' x 12'	14' 6"	26' 6"	1' 3"	4'	4'	5'	19'	5' 5"
28' x 14'	16' 6"	30' 6"	1' 3"	5'	4'	5'	23'	6' 2"
30' x 14'	16' 6"	32' 6"	1' 3"	5'	4'	5'	25'	6' 2"
32' x 16'	18' 6"	34' 6"	1' 3"	6'	4'	5'	27'	6' 11"
38' x 16'	18' 6"	40' 6"	1' 3"	6'	4'	6'	32'	7' 8"
40' x 20'	22' 6"	42' 6"	1' 3"	7'	6'	6'	34'	7' 8"

Note: Whilst these pool sizes are All Swim standard, non standard pools can also be built. Please contact All Swim for further information and advice.

Finished Pool Dimensions – Hopper Pools



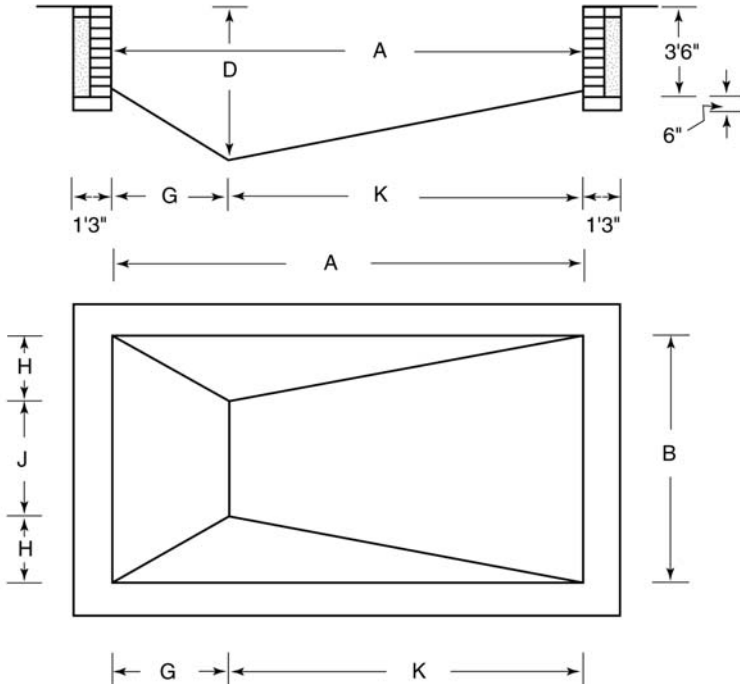
Hopper Pool

Finished Dimensions

Size	A	B	C	D	E	F	G	H	J	Gallons
24'x 12'	24'	12'	8'	5' 3"	7'	4'	5'	4'	4'	6,500
28'x 14'	28'	14'	10'	6' 0"	9'	4'	5'	5'	4'	9,000
30'x 14'	30'	14'	10'	6' 0"	11'	4'	5'	5'	4'	10,000
32'x 16'	32'	16'	10'	6' 9"	11'	6'	5'	6'	4'	12,500
38'x 16'	38'	16'	12'	7' 6"	14'	6'	6'	6'	4'	16,500
40'x 20'	40'	20'	12'	7' 6"	16'	6'	6'	7'	6'	20,000

Note: Block wall height includes 2" screed depth so reducing actual finished pool wall height by 2"

Finished Pool Dimensions – Constant Slope Pools

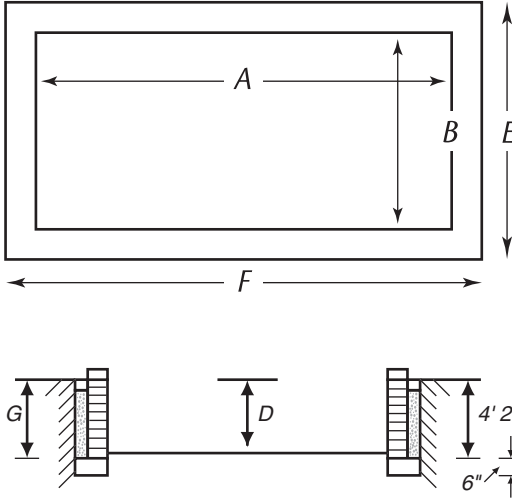


Constant Slope Pool

Finished Dimensions

Size	A	B	D	G	H	J	K	Gallons
24' x 12'	24'	12'	5'3"	5'	4'	4'	19'	6,500
28' x 14'	28'	14'	6'0"	5'	5'	4'	23'	9,000
30' x 14'	30'	14'	6'0"	5'	5'	4'	25'	10,000
32' x 16'	32'	16'	6'9"	5'	6'	4'	27'	12,500
38' x 16'	38'	16'	7'6"	6'	6'	4'	32'	16,500
40' x 20'	40'	20'	7'6"	6'	7'	6'	34'	20,000

Note: Block wall height includes 2" screed depth so reducing actual finished pool wall height by 2"

Flat Bottomed 4' Standard Pools**Flat Bottomed Pool****Excavation Dimensions Wall Depth 4'**

Pool Size	E	F	G
18' x 9'	20' 6"	11' 6"	4' 2"
20' x 10'	22' 6"	12' 6"	4' 2"
24' x 12'	26' 6"	14' 6"	4' 2"

Finished Dimensions

Pool Size	A	B	D
18' x 9'	18'	9'	4'
20' x 10'	20'	10'	4'
24' x 12'	24'	12'	4'

Note: Block wall height includes 2" (50mm) screed depth so reducing actual finished pool wall height by 2" (50mm)

Excavating the Pool

It is obviously easier and quicker to have a mechanical excavator from your local plant hire company, than to excavate by hand. Nowadays, excavators can be hired which will pass through 36" (914mm) openings but the smaller the excavator, the longer the work will take. A J.C.B. could easily dig a pool 30' x 14' (9m x 4.3m) in a day, if the soil is being retained on site.

If the soil can be used in your garden to form a bank, or to fill in a lower area of ground, it will be a lot easier and cheaper than if the soil has to be removed from site by the use of hired lorries or skips, and obviously the removal of soil from site also extends the time taken to dig the pool.

The walls of the pool are built with 6" (150mm) foundations, 3'6" (1.07m) of block wall for hopper and constant slope pools and 4'2" (1.28m) for constant depth pools, a bed of cement and then 1 1/4" (44mm) coping. Consequently, the footings around the pool will be dug approximately 4' 2 1/4" (1.3m) down from the datum peg.

The actual floor of the pool will have to be dug 2" (50mm) deeper than the finished pool to allow for 2" (50mm) sand/cement screed on the pool base. The excavation must be accurately dug, and any hollows must be made up with dry lean concrete to avoid future subsidence in these areas when the pool is filled with water.

We find that on excavating the base of a pool, the use of a spade by hand, to cut the exact shape, in the last few inches, is the most easy and effective way to ensure the correct pool base dimensions.

Note: When excavating your pool in areas composed of clay, or in high water table areas, difficulties can occur in building the pool and there is a possibility of water collecting under the liner. The ideal solution to this problem is to dig a trench with a fall from the lowest part of the dig to a lower area in the garden. 6" (150mm) land drains surrounded with shingle laid in the trench will give excellent drainage. For further advice please contact All Swim.

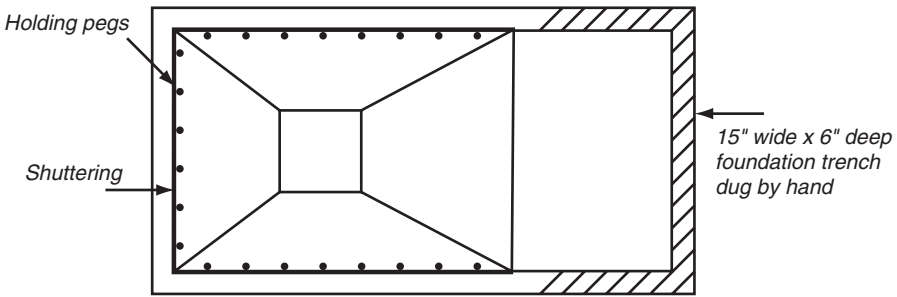
Pool Wall Foundations

Foundations for the pool walls are 6" (150mm) deep and 15" (380mm) wide. If the foundations are to be set on unstable conditions, two pieces of reinforcement iron must be incorporated in the foundation concrete. The mechanical excavator can dig the foundation at the hopper end of the pool as it means reducing the levels around the hopper perimeter by 6" (150mm). The shallow end foundations have to be dug by hand to ensure a 15" (380mm) wide trench 6" (150mm) deep. Due to the slope around the hopper it is necessary to fix temporary shuttering around the hopper to contain the concrete poured for the foundations.

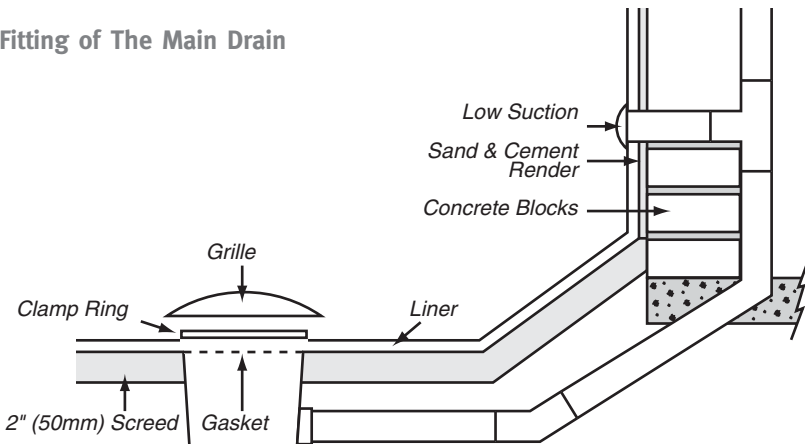
Scaffold boards or other suitable timber, held in place with pegs driven into the slope, is the most suitable method. This shuttering can then be removed the following day.

The concrete for the foundations should be a 1 : 2 : 4 mix and must be levelled round in one operation to ensure the foundation strength.

Before the final foundation is laid the pipe for the main drain must be fitted as illustrated.



Fitting of The Main Drain



Roman End Steps Method of Fixing

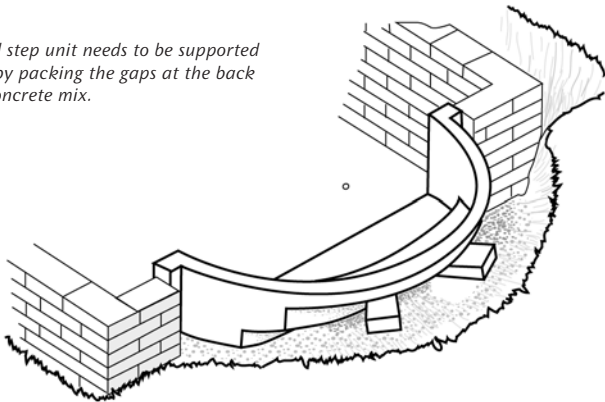
The concrete foundations should be continued around the entire pool, including the step section. The excavation should be dug out to 45 degrees leaving 3" (75mm) of clearance under the steps for subsequent concreting. The step unit should be set in position (ensuring all gaskets and screws are removed beforehand) with blocks providing temporary support. The inside face of the unit should then protrude from the face of the wall to allow for subsequent rendering - approximately 1/2"(13mm).

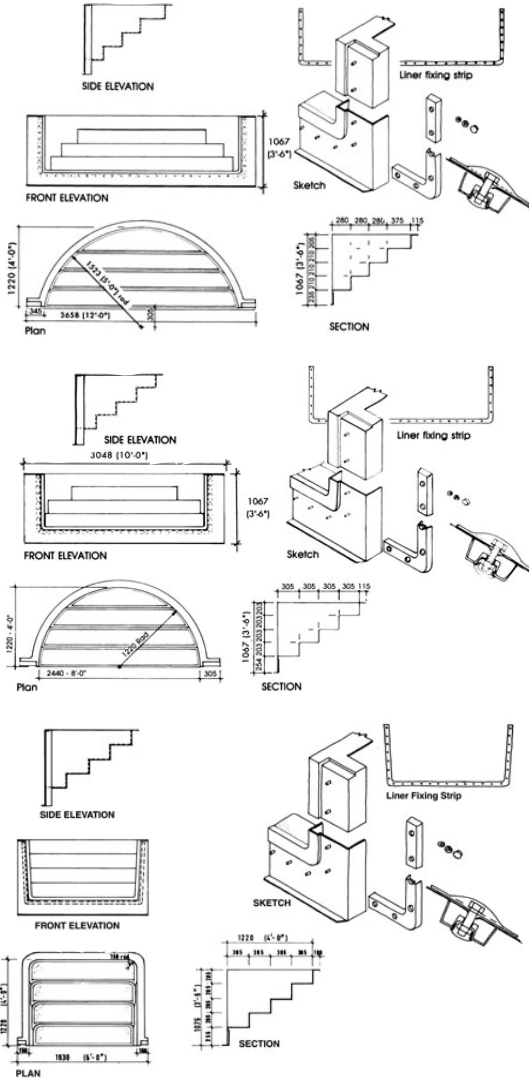
The first row of blocks should butt tightly against the side of the step unit. At this level, drill a 1/2" (13mm) hole through the side of the step flange and after squeezing up the end pass a wall tie through the hole. This will lay on top of the block and be thoroughly anchored when the next block is laid. These tie reinforcements should be used at every course of blocks.

Once the blockwork has set, a few barrows of concrete at each end of the step unit will thoroughly anchor the reinforcement. Use a mixture of 6:1 dry concrete to infill under the steps. After shovelling the mixture down under the steps, thoroughly tamp with a piece of 2" x 2" (50 x 50mm) timber to ensure that the steps are completely sound without voids underneath. This operation must be done in stages, one step at a time with plenty of tamping to ensure a good job.

The method of fixing is the same for square and corner step units.

A Roman end step unit needs to be supported underneath by packing the gaps at the back with a dry concrete mix.





Note: Step Unit dimensions can vary, please check with All Swim prior to installation if step unit is not on site.

The drawings are for guidelines only and that variations could occur in the manufacturing process.

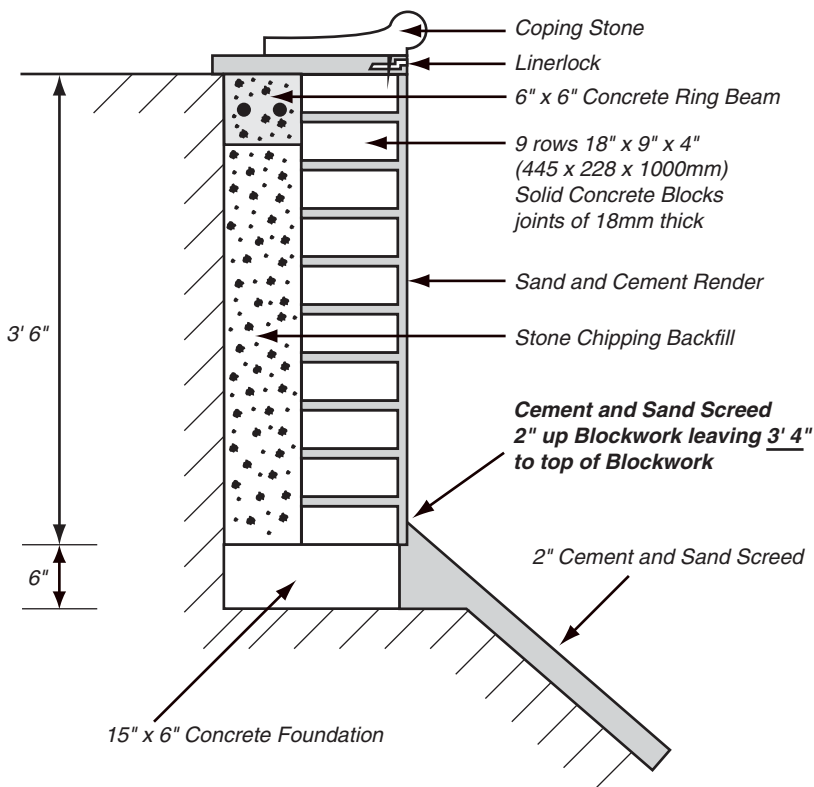
Pool Walls

The method of building the pool walls detailed below is only suitable for fully sunken pools. If any part of the pool wall is to be built above existing ground level, All Swim must be consulted beforehand so we can advise on the construction method to be used.

The walls are built of 18" x 9" x 4" (455 x 228 x 1000mm) solid concrete blocks laid flat on their sides with each course bonded.

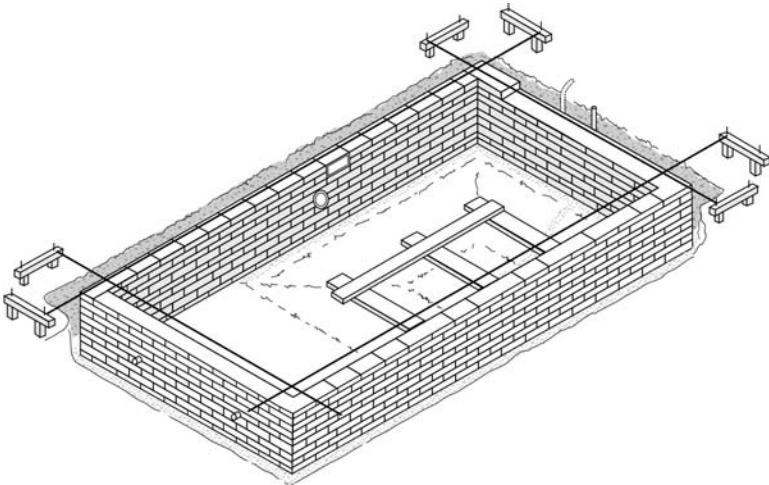
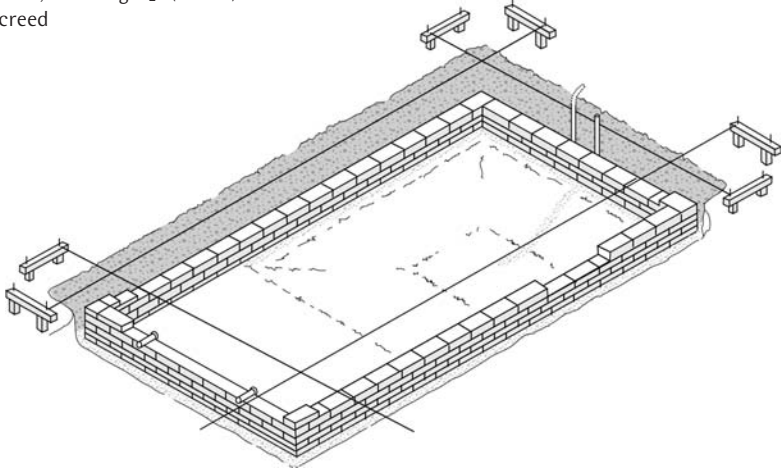
Ensure that the dimensions of the pool measured at the first row of blocks are exact and that the diagonals are equal.

The first three rows of blocks are then laid and on the third row, the pool inlet fitting(s), suction fitting(s) and underwater light(s) are installed, see pipe run diagrams on page 27 for recommended location of pool fittings. In all cases except the underwater light (which requires three quarters of an inch (19mm) the front plate of the fitting must protrude from the wall $\frac{1}{2}$ " (13mm), as the subsequent rendering will make up this difference. Then the building of the walls is completed and the surface water skimmer is fitted into the top two courses.



Building the Pool Walls

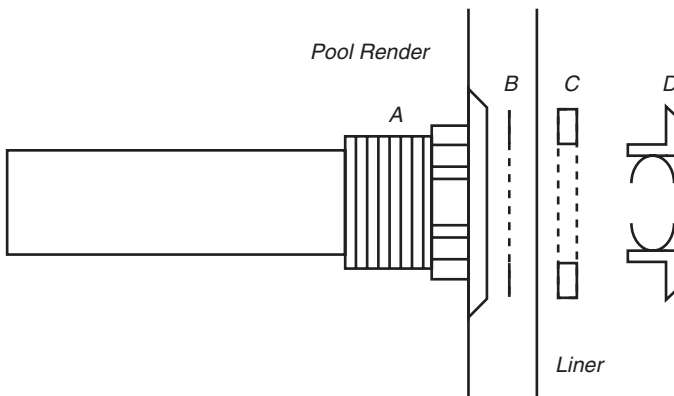
Lay the blocks course by course remembering to set each pool fitting in place, allowing $\frac{1}{2}$ " (25mm) for thickness of wall screed



Note: Remember to continually check horizontal and vertical levels while building

Pool Fittings

The RETURN INLET FITTING(s) bringing the clean filtered water back to the pool is installed on the third course of blocks in the centre of the short shallow end wall, however, if a step unit is being installed the fitting(s) can be repositioned to one or either side. A main drain is fitted in the middle of the deep end floor and a low suction fitting is installed in the third course of blocks in the deep end of the pool in the long wall, parallel with the main drain. A return pipe is then laid under the pool floor from the main drain, the low suction is then connected, and this pipe is then returned to the pump.



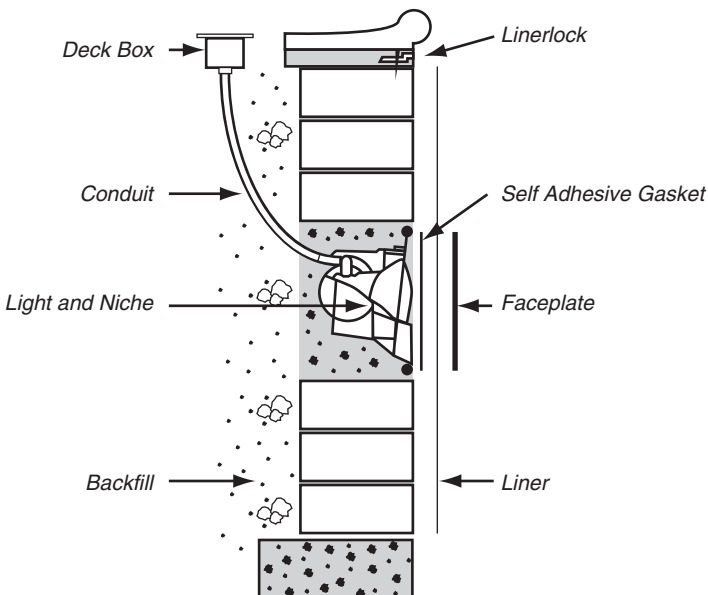
- The fitting to be built into the wall is supplied with a length of pipe already fitted and should be built into the wall so that the final coat of render on the wall comes to the back of the chamfer as shown in the illustration. Once fitted it is recommended the fitting is taped over with masking tape, to prevent any debris entering the pipe.
- The gasket has to have its protective backing removed so that it will stick to the fitting built in the wall. Ensure that the fitting itself is clean before sticking the gasket in place just before fitting the liner.
- The clamp plate is now fitted in place with four stainless steel screws. This part of the fitting must be installed when the liner has been correctly fitted.
- This is the faceplate of the fitting and gives the final finish to the fitting hiding the fixing screws.

Underwater Light

When deciding upon the position of a pool light, one should always try and install the light on the side of the pool nearest the house or the sitting area. In this position the pool will be lit up without seeing the light itself. Therefore, the best position for the light, if it complies with the previous rule, is in the centre of one of the long walls. The underwater light is installed on the third course of blockwork with the flexible conduit made on the back of the light niche with a watertight joint.

BEFORE THE NICHE CAN BE BUILT INTO THE WALL, THE BACKING RING MUST BE FITTED TO THE LIGHT NICHE WITH 4 STAINLESS STEEL SELF-TAPPING SCREWS.

Remove the 'guts' of the light by removing the two chrome securing screws, and store carefully together with the gasket, front plate and screws. The front flange of the light must protrude three quarters of an inch from the wall. THIS FLANGE AFTER RENDERING MUST BE PROUD OF THE WALL, BY 1/4" (6mm) OTHERWISE THE FACEPLATE WILL NOT BED CORRECTLY. The plastic conduit is connected to the bottom of the deck box, which is positioned behind the coping at paving level. Great care must be taken to ensure that the conduit is installed as a long slow curve, without any kinks, as the cable from the light has to be threaded up this conduit into the deck box. When installing an underwater light it is recommended the gland on the back of the light niche is checked and tightened to avoid water leaks.



Transformer to Deck Box Cable Runs

Although detailed instructions are given with the transformer the following information is essential:-

- (a) Under no circumstances can the cable lengths between the deck box and transformer be less than 5 metres or more than 50 metres.
- (b) The cable run between the transformer and the deck box is to be in 2 Core, 4, 6 or 10mm² copper conductor, PVC sheathed, protected within a PVC or alkaline conduit insulated, single wire armoured cable.
- (c) The four output charges of the transformer allow a range of lengths of the above cables to be used to connect the transformer to the deck box. The range is as follows:-

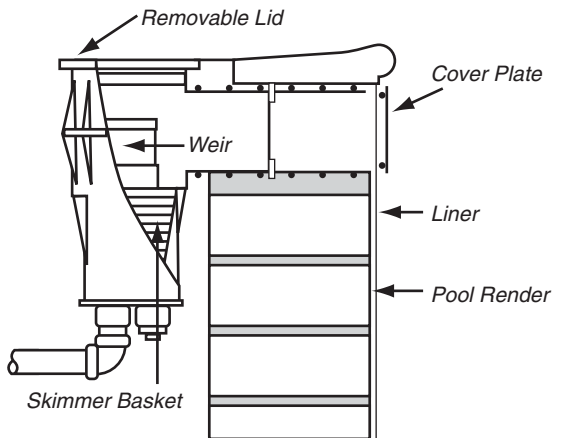
Length of cable run in: -

	4mm ²	6mm ²	10mm ²
12.8V	5m - 8m	8m - 12m	12 - 19m
13.6V	8m - 11m	13m - 17m	20 - 28m
14.5V	12m - 16m	18m - 23m	29 - 38m
15.3V	17m - 20m	24m - 30m	39 - 50m

Surface Skimmer

The surface skimmer has two functions. It removes surface debris, flies etc., from the pool surface and is also used as the vacuum point for attaching the vacuum kit for cleaning the bottom of the pool.

The skimmer is positioned in the centre of the long wall of the pool, on the side opposite the prevailing wind, so that the wind will assist in blowing the surface debris to it. If the pool is so placed that the prevailing wind blows down the length of the pool, it is good practice to have a second skimmer installed on the short side of the pool as well as in the normal position.



The skimmer is supplied in two basic parts: the extended throat and the main body of the skimmer but does come with a fitting for the connection of the necessary pipework. These parts must be glued together before fixing the skimmer in the pool wall - Clean all surfaces to be joined then paint the surfaces with the solvent cement. Hold both faces together until firm. When set, paint the internal and external edges with solvent and leave for 24 hours to fully set. The skimmer rim is then placed 1" (25mm) down from the top of the pool wall.

The water level in the pool is normally kept half way up the mouth of the skimmer and in consequence the water level of the pool is approximately 4" (100mm) from the top of the pool wall.

Interior of Pool Walls

After building the pool walls and building in all the fittings, the pool walls have to be finished. The walls of the pool are then rendered with a thin cement and sand render to make the walls perfectly smooth. This render is composed of 6 parts sand (50% sharp and 50% soft) and one part cement. The four corners must then be rounded out with a strong sand/cement mix to form a 6" (150mm) radius corner. Due to the thickness of the corner it is best done in two operations. To aid rendering the overhang of a piece of timber on the top row of blocks can help ensure a level finish.

Pipework and Plumbing

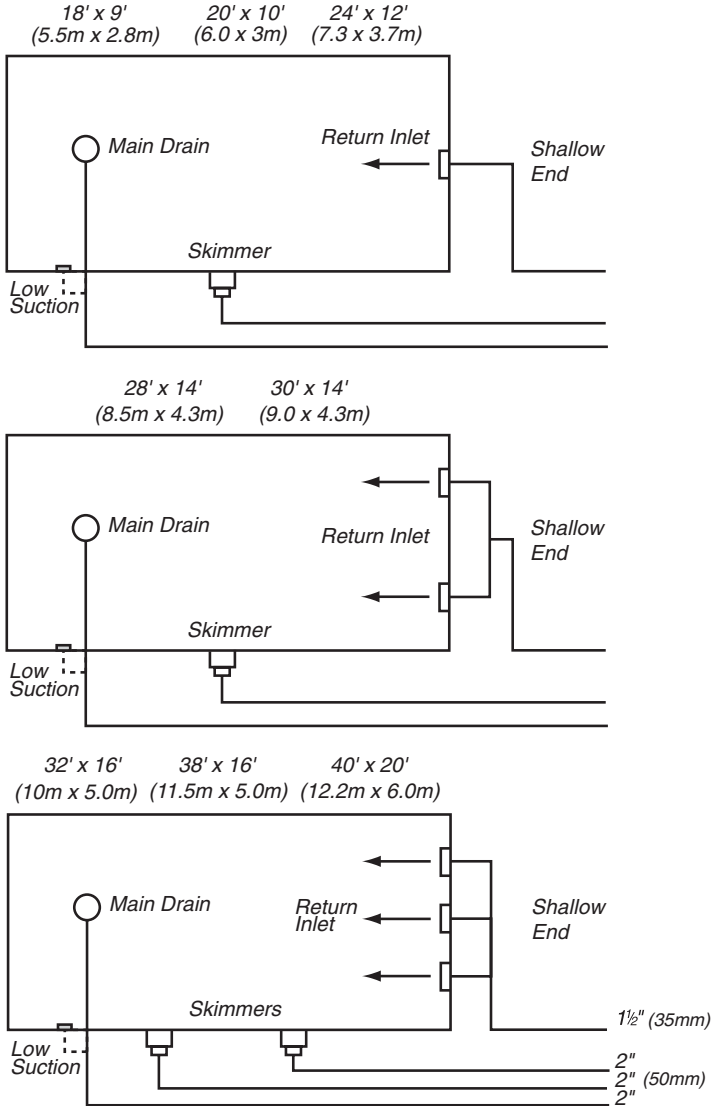
Once the walls are completed the next step is to connect the pipework; this is run around the outside of the walls and should be approximately 15" (380mm) below deck level to help protect them from frost. All the pool fittings and pipework are made of high density ABS plastic, the pipe is supplied in 3 metre lengths and all the fittings are solvent jointed ensuring permanent leakproof joints. All kits are supplied with sufficient pipework and fittings to position the pump and filter within 10 feet (3m) of the pool.

All pipework and fittings should be cleaned prior to jointing, the solvent cement should then be liberally brushed inside the fitting and around the pipe, and firmly pushed together. Make sure the fitting is pointing in the correct direction as the solvent starts to set very quickly. A good tip on the installation of the pipework in the filter housing is to set up all the piping first, without solvent welding the parts together. This will enable the pipework to be set up very neatly without having to worry about the solvent setting too quickly. Do ensure however, that every joint is properly made if it is set up dry in the first place.

When running the pipework from the pool to the filter, it is best if all the pool pipelines are kept down below the water level of the pool. If this is done it will make the subsequent priming of the pool pump very easy.

Note: All pools utilise 1½" ABS pipework, except for 32' x 16' (10m x 5m), 38' x 16' (11.5m x 5.0m) and 40' x 20' (12.2m x 6.0m) where the skimmer and suction lines utilise 2".

Pool Piping Runs



Once all the pipes are connected they need to be pressure tested to check that all the pipe connections and joints have been made correctly. Each pipe is tested in turn, blocking the pool end with a bung and adding a length of pipe at the plant room end so that it is 3' (915mm) above the pool to give sufficient head of water. If the connections are correctly made the water level will remain the same, if it disappears check the bung and repeat. If it disappears once more the pipe connections and joints need to be checked carefully.

Plant Room

The pool equipment needs to be sited in a shed or outhouse, preferably the building needs to be located as close to the pool as possible and must have an electrical supply. It also needs to be of an adequate size to contain the pool pump, filter and heating system; ideally there would be enough space to gain easy access to all sides of the pool filter.

Pool Floor

After the walls have been rendered the floor should be prepared to allow for an even 2" (50mm) sand/cement screed, but, remember the main drain needs to be in its correct position before the floor screed is laid.

To ensure the correct position of the hopper proceed as follows: -

Using masonry nails, place a nail at the top of the pool walls in positions in both the hopper and shallow ends, stretch string across the nails in both directions drop a plumb bob at the intersections of the strings to show the exact corners of the hopper and their depths; check these against the finished pool dimensions. Pegs can now be driven into the finished height of the floor screed in the position of the hopper.

The accuracy of the finished floor is aided by using a 2" x 1" timber frame at the hopper bottom and also a straight line of timber set at the correct height at the shallow end division. The screeding line can be drawn in chalk along all the walls at 3' 4" (1.036m) depth for hopper and constant slope pools and 4' (1.2m) for constant depth pools to ensure an accurate straight line for the floor screed. As screeding proceeds all the timber must be removed and the voids thoroughly filled in with screed.

The final floor screed 2" (50mm) shall be composed of fine loam sand 6:1 cement DAMP mix, well tamped, floated and trowelled to a perfect flat, smooth finish.

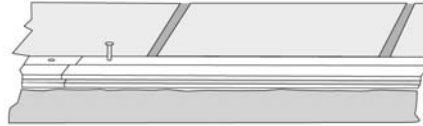
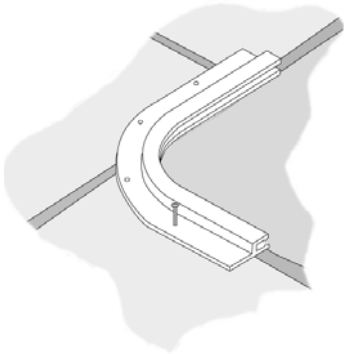
In wet muddy conditions the floor shall be excavated to allow approximately 75mm of 18:1 dry lean mix concrete to provide a clean well-drained consolidated floor. Level the mix down the hopper slopes, straighten off with a length of timber and finish with a metal plastering trowel. When the sides of the hopper have been completed, level the bottom of the hopper and work back out of the pool, up the slope, to the shallow end. Once completed do not attempt to walk on the screeded surface for at least 24 hours.

Fitting the Linerlock

If the tops of the pool walls are not ABSOLUTELY FLAT AND LEVEL this must be adjusted before the linerlock is fitted.

The plastic linerlock extrusion can now be fitted to the top of the pool wall using the masonry nails provided in the kit, at approximately 9" (228mm) centres. Nail through the flat back section of the linerlock. Special corners are provided but these are best fitted after running a fine drill through the plastic to prevent the extrusion cracking.

When fitting linerlock on a pool with a step unit the linerlock must continue until it is flush with the flange on the step unit being installed.



Backfilling

The backfilling around the pool walls is a job that must be carefully carried out so as to prevent damage to the pipe runs and to prevent any future subsidence. Chippings or peagrit are used for this backfill and the quantity required is given in the table of materials at the front of this booklet.

Concrete Ring Beam

A concrete ring beam measuring 6" x 6" (150mm x 150mm), with two rows of 1/2" (13mm) steel reinforcing bar must be set around the entire perimeter of the pool. This ring beam continues around the skimmer(s) and the Roman End if fitted.

Pool Underlay

All Swim's underlay is a 10mm thick polyethylene foam supplied in 5'0" (1.5m) widths which is cut to size on site and is laid flat on the pool floor with joints being secured with crossweave tape. Whilst on the walls it is attached with spots of a special adhesive. It is very important that the adhesive is used only on the pool walls and is used sparingly; this is to ensure it is fully dry before the pool liner is fitted.

When fitting underlay on the floor ensure all the joints butt together before taping them securely. It must also be remembered that a gap of 1" (25mm) needs to be left between the top of the underlay and the linerlock and that the underlay needs to be cut around the skimmer(s), light(s), inlet(s), main drain and suction fitting.

Fitting the Liner

Note: It is strongly recommended that before fitting the liner the coping stones are installed in order to prevent subsequent damage to the pool liner (N.B The Linerlock must be fitted before the coping stones).

Before starting to fit the liner, make sure that the pool is spotlessly clean and that all gaskets on the pool fittings are in position. If a light is installed check that the sealed beam unit of the light is fitted into the light niche. All pool liners are of the parachute type and are made slightly smaller than the pool, so that they stretch into position to give a perfect, wrinkle free fit. It is best to fit the liner on a warm, sunny day so that it will become pliable, if this is not possible leave it overnight in a warm room.

Take the liner out of the box whilst in the pool itself and check for the arrow showing the deep end of the pool, ensure you unfold the liner carefully and locate the four corners beginning with the shallow end, at this stage **consult the full liner instructions before proceeding**. The beading on the liner fits into the linerlock that is found at the top of the wall and because of its special shape it then holds itself in position. Ensure that the four corners of the liner are fitting in the corners of the pool correctly and after any adjustment, commence filling with water until there is approximately 3" (75mm) of water in the hopper. This should be enough to anchor the hopper and at this stage the positioning of the liner must be checked again. The liner should be bedded down with equal tightness on all four sides of the pool. When the liner has been bedded down satisfactorily and checked thoroughly, carry out filling until there is 6-9" of water in the hopper, at this stage it is a good idea to anchor the two shallow end corners with sandbags.

If the liner is away from the shallow end, free the liner from the linerlock, get behind the liner and gently pull the liner to the shallow end. The liner can stretch considerably especially in hot weather. After the liner has been gently and firmly stretched, weighted sand bags should again be placed in each corner to anchor them as the filling continues. When there is 6" (150mm) of water covering the shallow end, these sandbags can be removed. Once the water level in the deep end reaches 8" - 1' (200mm - 1000mm) then the main drain may be cut in. (see cutting in pool fittings)

Removal of Packaging Wrinkles

When the liner is first fitted in the pool it will have several packing folds and wrinkles. If the liner is being fitted on a hot day, these wrinkles will disappear of their own accord, but on colder days some assistance in their removal is required. Wait until the wrinkle is covered with 3" (75mm) of water, and then gently pull the material away from the wrinkle, when released the weight of the water will hold the liner in its wrinkle free position. This sequence will have to be repeated in stages as the water rises, but care and patience will result in a perfect liner fit, with no creases or wrinkles. If the water depth is 8" (200mm) or more over a fold or wrinkle, there will be too much weight on the liner to straighten it out and will result in the fold or wrinkles being permanent.

Fitting the Liner with the use of a Vacuum Cleaner

A commercial vacuum cleaner with a hose attachment will make the fitting of a pool liner a lot easier. The liner is fitted in the linerlock all around the pool except for a small section, about 12" (300mm) away from the deep end corner.

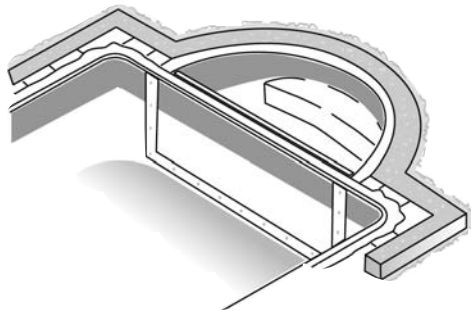
Push the suction hose down between the wall and the liner until it is approximately 1" (25mm) from the bottom of the wall. Make sure, if the pipework is not completed that the ends of the pipe runs are sealed off to prevent loss of vacuum.

Seal around the vacuum hose with a wet cloth, when the vacuum is turned on the liner will be sucked to the pool walls and floor, once the air behind the liner has been evacuated the liner will be held against the pool walls and floor and it will then be easy to see if the liner has been correctly positioned. If the liner is incorrectly fitted the vacuum can be turned off, the liner repositioned and the vacuum restarted.

When you are satisfied the liner is correctly fitted start filling with water. The vacuum must be run continually, and not be turned off until the water covers the shallow end of the pool by at least 4" (100mm). The vacuum can then be removed and the remaining liner bead fitted to the linerlock. The vacuum will hold the liner in perfect position while filling, whilst in warm weather it will also help to suck out any folds and packing wrinkles.

Fitting the Liner with a Roman End, Square, or Corner Step Unit

All types of step unit are supplied with a gasket and faceplate. Remove the screws around the face of the step unit; take off the faceplate leaving the gasket attached to the step unit. For Roman End or Square Steps a plank of timber or scaffolding board is placed temporarily across the top of the step unit and the liner is fitted as previously described. To prevent the liner sagging at the step unit, it is fixed to the plank with drawing pins. As the pool is being filled and the level of water reaches the first step, the liner should be firmly located around the pool; the faceplate is then fitted. Screws are inserted through the faceplate, gasket and step unit and progressively tightened in sequence. Firmly secured, the liner can now be cut away from the inside of the faceplate and removed.



Cutting the Pool Fittings

The pool fittings should not be cut until the water level is immediately below the fitting.

ENSURE THE LINER IS CORRECTLY FITTED BEFORE CUTTING THE LINER.

Note: LINER POOLS MUST NOT BE EMPTIED.

Cutting The Main Drain

Take the main drain flange, gaskets, grille, screws a Phillips screwdriver and knife down to the bottom of the hopper. The main drain can be easily felt through the liner, and each screw hole punctured with the point of the screwdriver. Both gaskets are positioned under the flange, on top of the liner, and the eight screws are securely screwed home. It is best to screw these lightly first and then screw home the diagonally opposed screws until they are tight. Simply remove the liner material in the centre of the main drain with a sharp knife and fit the grille cover into position.

Cutting The Return Inlet Fitting(s) / Low Suction Fitting(s)

The return inlet(s) must not be cut until the water level is immediately below the fitting. If the pool fittings are cut before the pool has filled to this level there is a possibility of subsequent liner stretch when the pool is filled resulting in creases around the fittings. Locate the four holes in the fitting and pierce them with a Phillips screwdriver, now cut and remove the circular hole of liner from the centre and firmly secure the flange into place, again rotating the screwing up procedure. The eyeball housing part can now be screwed into place.

Cutting The Underwater Light Fitting

The underwater light fitting must NOT be fitted until the water level is immediately below the light. At this stage the 12 holes are easily located through the liner, and each should be pierced with a Phillips screwdriver. The faceplate should now be fitted and securely screwed tight, again tighten the diagonally opposed screws in rotation until firm. After the faceplate has been fitted, use a sharp knife and cut out the inner circle of the liner. If in the future, the bulb unit has to be changed this is easily carried out without lowering the water level. Undo the two securing screws, remove "guts", uncoil surplus cable wound around light and lift unit onto the paving, the bulb can now be changed and the light refitted.

Cutting The Skimmer

Again wait until the water level is immediately below the skimmer. Locate and puncture the 16 screw holes, and cut out the inner rectangle of liner. There are two gaskets to fit in between the liner and the flange, which are easily located by pushing two screws in the top corners of the flange and pushing gaskets over these screws, then fixing the flange and gaskets to the skimmer. Again screw up carefully and in rotation. After the skimmer faceplate and gaskets have been fitted, the pool filling can be continued, until the water level is halfway up the skimmer mouth.

Once filled liner pools must always be kept full of water, especially in the winter and when closed down properly will not be damaged by ice. If the liner is left empty during the winter or for any prolonged period, it will shrink, become brittle, and be completely ruined. Consequently, if the pool has to be emptied for any reason, make certain that it is refilled as soon as possible to minimise the risk of shrinking and damage.

Liner Pool Steps

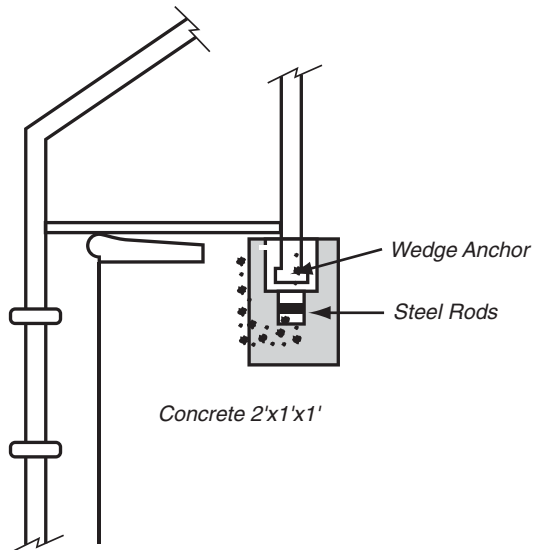
The steps for a pool are constructed in stainless steel with A.B.S. treads. Liner pool steps are designed so that no part of the step comes into contact with the pool wall, so preventing any abrasion or damage to the liner.

The steps are held in place with pinch anchors, which enable the steps to be fixed securely and also to be easily removed for winter storage, if required.

The step anchors should be set into a concrete block measuring 2'0" x 1'0" x 1'0" (610mm x 300mm x 300mm).

It is advisable to incorporate two steel reinforcing rods in the concrete placed through the base of each step anchor.

Stainless Steel Liner Pool Steps



Coping Stones

A cement and sand fillet must be accurately levelled around the top of the pool wall to finish level with the top edge of the linerlock. Allow this fillet to fully harden before fitting the coping stones. Mix up a grout of white cement with water in a bucket and mix until a creamy consistency is obtained. Pour this onto the levelled screed and trowel along the surface. The coping is then placed on the wet grout and correctly positioned. Take care to make sure the copings are all level, some stones may need more or less grout due to the fact that they are not all uniform in depth when manufactured, always start with the corner copings and stretch a string line across the front of the copings to ensure a straight accurate line, take time and care to ensure that all the copings are straight and level. Copings are easily cut using a masonry saw or a carborundum disc cutter.

An even gap of approximately $\frac{1}{2}$ " (13mm) should be left between the copings and the joint filled with a 1:1 mixture of white cement and sand. Make sure the mixture is not too wet or it will run over the edge of the coping and spoil its appearance. When setting the coping stones around the pool ensure a full length is used to bridge the skimmer(s) so that undue stress is not placed on the skimmer extension throat.

Pool Paving

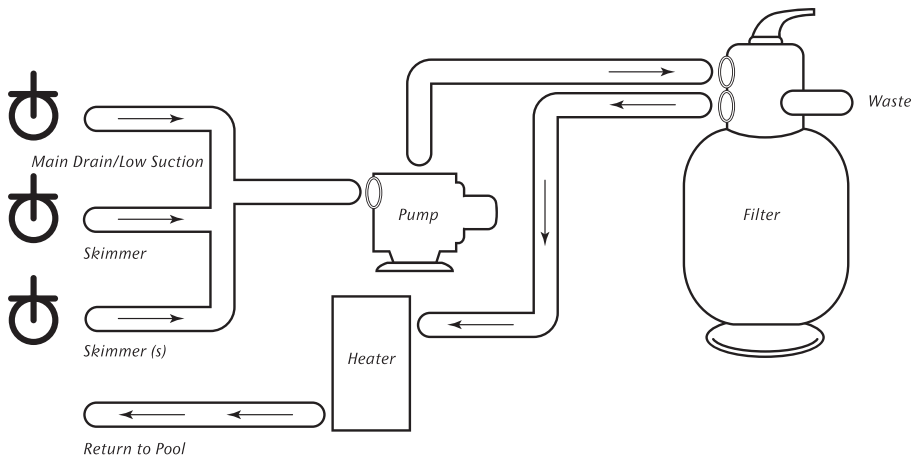
The paving around the pool should be practicable as well as aesthetically pleasing. Paving should be laid where possible with a fall away from the pool so that dirt or dust on the paving does not enter the pool after rain, it needs to be non-slip, as smooth slippery surfaces can be very dangerous. Recently, pool surround alternatives such as decking and artificial grass, have gained in popularity and can be used if preferred.

Fitting the Filter

The filter and the required filter media are supplied separately and to fill your filter place the funnel supplied with the filter over the standpipe and then begin filling the filter with the media, make sure that the media is added carefully to the filter and bedded down well around the filter fingers in the bottom of the filter, ensure that all the media supplied is added and that no media gets into the vertical standpipe of the filter. After placing the media wash off the threads at the top of the filter with a hose pipe to prevent any sand damage. When the multiport valve is ready to be fitted remove the funnel, it is also recommended at this time to fill the filter with water to reduce sand bed disruption on initial set-up.

When starting the filter for the first time ensure the multiport valve is in the backwash position to prevent any of the fine carrier in the media being deposited in the pool. For more information see 'Priming the Pool Pump'.

A filter should be run continually in the season to ensure perfect water quality, we do not advise the intermittent use of a filter, by the use of a time clock, as we find the water quality suffers and problems ensue.



Denotes location of Valve

The directional lever on your filter is known as a multiport valve. It's purpose is to control water flow to perform various functions. The lever should not be moved to any particular function without first switching off the swimming pool pump. The name plate on the multiport valve indicates the six possible positions:

(1) Filter

The normal operating position for the filter when the pool water is being circulated through the sand bed contained in the filter chamber. The filter sand bed removes fine suspended matter as water passes through the filter before being returned to the pool.

(2) Backwash

A rise of about 5lbs above the clean running pressure indicates the filter requires backwashing. The positioning of the multiport lever in the backwash position will reverse the flow of water through the sand bed and direct the water and dirt out through the waste port of the filter - this waste port can be permanently plumbed to discharge over a drain or alternatively a backwash hose can be used.

The filter is run in the backwash position for approximately two minutes during which time a visual check on the sightglass will confirm when all the dirt has been removed. It is recommended a filter is backwashed at least twice a week.

(3) Rinse

Having backwashed, or cleaned the filter, the multiport lever is relocated to the rinse position. The pump is run for approximately 15 seconds in this position in order that the filter is rinsed clean. On completion of this function the multi-port lever is returned to the filter position. The frequency of cleaning a filter would depend on the pool usage. Having 'backwashed' and 'rinsed' 'clean running', pressure should now be restored and noted.

(4) Recirculation

A position rarely used. In operation, would circulate pool water via the pipework only and not through the filter giving a higher flow rate. This is occasionally used for rapid dispersal of chemicals to treat particular pool water imbalances.

(5) Closed

A swimming pool pump incorporates a small plastic basket to trap larger particles, which might otherwise foul the impellor of the pump and cause damage. The basket located in the pump housing requires a periodic clean. A drop in pressure at the pressure gauge would indicate this basket is choked and requires cleaning. Having switched off the pump, the multiport lever is located in the closed position to prevent pool water syphoning from the filter on the removal of the lid. Remember to return the lever to normal filter position on completion and switching on of the plant.

(6) Waste

When the multiport lever is located in this position, water is passed out through the waste port without passing through the filter. The use of this position will lower the pool water level rapidly after periods of heavy rain, and is also useful if there are high concentrations of debris on the pool floor – vacuuming to waste can prevent fouling of the filter media.

Priming the Pump

When an installation is to be started for the very first time the procedure detailed below is carried out.

Note: The pool pump must never be run without first filling the strainer pot on the pool pump with water.

The procedure to prime the pump is as follows:

- (a) Make sure the pool is full. When the water level is low it is very difficult to prime the pump.
- (b) Close the valves on the skimmer(s) and low suction/main drain lines.
- (c) Make sure that the multiport valve on the filter is set at 'FILTER'.
- (d) Remove the pump lid and fill to the top with water. Refit the lid making sure the lid is seating correctly on the rubber 'O' ring.
- (e) Switch on the pump and immediately open one of the valves. After a few minutes the pump should have primed itself and start pumping. The pressure gauge on the filter will rise. If this does not happen within three minutes, turn off the valve, switch off the pump and go through the procedure again.

As the new filter media has a fine carrier in it, it must be removed prior to the normal use of the filter. This is done by setting the multi-port valve to 'BACKWASH' and carrying out the pump priming procedure. The fine carrier will then be separated from the filter media and discharged to waste. By looking at the sight glass on the multi-port valve, it can be seen when dirty water has been discharged. When the sight glass is clear, turn off the pump, turn the multiport handle to 'RINSE' and turn the pump on again. This setting will re-bed the filter media, whilst still discharging the water to waste. Normally about 15 seconds is all that is required in this position.

When vacuuming the pool, if the vacuum head is lifted out of the water or if the Skim Vac Kornea is not properly seated, the pump can lose its prime. If this happens normal procedure for priming the pump must be carried out.

If the pump will not prime there is generally an air leak in front of the pump. It could be that the pump strainer lid is not seated correctly or the socket union between the pump and the valves is not fully tightened.

Check that the rubber 'O' ring has been replaced in the socket union.

Electrical Connections

A fully qualified electrician must carry out all electrical work, please refer to manufacturer's handbook for installation procedures.

Pool Water 'Multi' Test Kit

The pool water multi test kit included in All Swim pool kits, is a simple test kit which enables the pool owner to keep the pool in perfect condition.

A swimming pool has to be kept physically clean, which is carried out by vacuuming the pool, the skimmer and the rapid sand filter and bacteriologically pure, which is carried out by the addition of chlorine to the pool. All bacteria and algae entering the pool are killed by the correct dosage of chlorine to the pool water.

The multi test kit carries out the following simple tests and allows you to keep your pool at the following target values

Test	Target Value
Chlorine Level	1.0 - 1.5ppm (parts per million)
PH (Plus also Acid & Alkali Demand)	7.4 - 7.6
Total Alkalinity	80 - 120 ppm

We suggest that all our customers refer to our free water care handbook and also take advantage of our FREE water testing service. This service is particularly beneficial when opening the pool in the Spring and in the Autumn when winterising the pool. This service gives a detailed computerised water analysis and will help you keep your pool in perfect condition.

Normal Routine Maintenance

- (1) **SKIMMER** Check the basket in the surface skimmer frequently, especially in the autumn when leaves are falling, or after high winds. It is possible for the basket to fill up with leaves, so reducing the flow of water and consequently starving the pump of water. Check the water level in the pool and top up when necessary. Ideally the pool water level should be half way up the skimmer.
- (2) **FILTER** Check the pressure gauge. Always backwash the filter when the pressure reads 5lbs above clean running pressure. When the filter is dirty only $\frac{1}{4}$ - $\frac{1}{2}$ of the pool water is being passed through the filter and hence a very poor filtration cycle takes place.
- (3) **PUMP** Check the course strainer in the pump periodically, especially after cleaning the pool. When replacing the lid of the pump, make sure that there is no dirt or debris on the rubber sealing ring and that the lid is firmly closed. A REDUCED reading on the pressure gauge is indicative of a badly choked strainer basket. The pump refusing to prime or the presence of fine air bubbles being blown into the pool from the pool inlet(s), is indicative of an air leak at the pump strainer lid.

Pool Vacuum

A pool vacuum system works in a similar way to a domestic carpet vacuum, but uses water instead of air.

Some wind blown debris is bound to sink to the floor of the pool and to remove this most pool owners vacuum their pools once a week. The vacuum hose and extending handle are attached to the vacuum head, the hose is then filled with water. This is easily done if the vacuum head is allowed to rest on the pool bottom, whilst the hose is pushed vertically down into the water in an overhand manner this will expel all the air easily. The hose is then attached to the Kornea vacuum plate, which in turn is fitted over the skimmer basket after the removal of the floating collar.

Alternatively, an easier way to vacuum the pool is by investing in an automatic pool cleaner, the principles of operation are the same, except you no longer need to vacuum the pool yourself, as it can be done automatically either day or night.

Method of Procedure

- Backwash filter to ensure maximum suction
- Fit vacuum head, hose and handle
- Fill vacuum hose
- Fit Kornea to hose and attach to skimmer
- Shut off main drain/low suction valve
- Vacuum Pool
- Remember to always keep the vacuum head below water level
- Backwashing of the filter may be necessary during vacuuming, if the pool has been allowed to get very dirty
- If while vacuuming the suction is lost completely or reduced in power, check the following points:
 - Does the filter need backwashing?
 - Is the skimmer basket full?
 - Is the pump strainer basket full?
 - Is the Kornea seated on the basket properly?
 - Is the vacuum head or hose blocked with leaves?

Care of the Liner

Pool liners are very strong and can stand up to many years of use with no problems, however, they can be damaged by misuse, such as worn out cleaning equipment and inadequate winterisation. Liner damage can also occur by the improper maintenance of the pool water, it is important to keep the pH of the water at the correct level of 7.4 and to make sure that the directions for the addition of pool chemicals are adhered to. As a rule all chemicals should be predissolved before addition to the pool water, as some chemicals allowed to remain undissolved on the pool floor could bleach the pool liner in patches.

Solar Blanket

A necessity for every pool owner. A solar blanket floats on the surface of your pool (bubbles downward) letting the sun raise the water temperature whilst retaining the warmth until you are ready to swim. In season it can raise the pool water temperature by as much as 10 degrees Fahrenheit, and at night it insulates the pool so that a major proportion of the day's heat is retained. For owners of heated pools, the solar blanket means big savings in pool heating costs, whilst the transmission and retention of free solar heating reduces the cost of conventional pool heating.

Winter Debris Cover

A winter debris cover protects the pool from dirt and leaves in the winter when the pool is not in use. It is manufactured from a strong close woven UV stabilised polyethylene yarn that permits controlled seepage of rain water yet screens out leaves and debris. It helps keep the pool in good condition for easy re-opening at the start of the season. The cover is supplied 2' larger than the pool water area to sit neatly over the coping stones: it is then held in place with stainless steel springs and 'P' anchors. Fitting the cover is very easy only necessitating the drilling of small holes in the pool surround.

Winter Care

As previously stated, a pool must be kept full of water at all times. In winter as water freezes, care must be taken to stop damage occurring to the pool as well as the expensive pool equipment.

In order to ensure that the pool water stays clean and sparkling through the winter, make sure that the pH is correct, shock dose the pool with All Swim shock granules and add the required amount of liquid Winterclear (5 Litres per 12,000 gallons).

The pool must be kept clear of leaves otherwise they will stain the liner, this can be carried out by the use of a leaf net or by the fitting of a winter debris cover.

The skimmer must be winterised to prevent it being damaged by ice, and this is carried out by first removing the skimmer flap or floating collar assembly as well as the skimmer basket. A plastic bottle securely tightened and weighted with stones is then placed in the skimmer; this acts as an expansion bottle and in freezing weather will be compressed by the ice instead of cracking the skimmer body.

The pump, filter and heater must all be drained but before doing so make sure the filter has been well backwashed to prevent the solidifying of dirt in the filter media over the winter period.

The pump has two drain out plugs, one on the bottom of the pump strainer pot and the other on the impellor housing, the pump is then best removed and stored in a warm dry atmosphere for the winter in order to prevent condensation attacking the pump windings. The filter is then drained by opening the plug at the base.

If a heat pump is fitted, the two unions should be loosened and a hosepipe inserted into the top connection to enable the heat exchanger to be flushed out with clean water.

Regular monitoring of the pool in winter is essential, as rainfall will increase the level of water in the pool. If the water level rises to coping level and subsequently freezes, it could cause lifting of the pool coping stones.

Summary of Winter Care

- Remove solar cover, clean and dry thoroughly; then store for the winter
- Clean pool and remove all leaves
- Backwash filter and ensure water level is at normal height (halfway up skimmer)
- Check and adjust pH
- Add winterising chemicals
- Put expansion bottle in skimmer
- Fit winter debris cover
- Drain pump, filter and heater
- Store pump in a warm dry atmosphere
- Ensure pool water level does not rise to coping level.



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