Checking the structure

In the case of a pool fitted with an **Alkorplan 2000**® membrane, the base and walls of the pool fulfil only a supporting function and not one of watertightness. It is therefore necessary to avoid subsoil water (groundwater table, infiltration water) coming into contact with the membrane. Because organic pollution could, in this way, be brought into contact with the **Alkorplan 2000**® lining and, in time, give rise to the formation of unattractive stains.

A preventative treatment of the walls and base of the pool, using **Alkorplus 81052**, a fungicide and bactericide, is also highly recommended in order to avoid the formation and proliferation of such micro-organisms between the lining and the pool.

In the case of renovation of a pool previously painted with a coat of chlororubber-based paint, the **Alkorplan 2000**® sheeting must be insulated from the old paint by a protective layer made of non-woven polyester fabric with a weight of at least 300 g/m2. The fitter must first ensure that the adhesives or adhesive tapes used to attach the protective layer are compatible with **Alkorplan 2000**® membranes.

The installation plane must be a smooth, even, clean surface free of gravel and other coarse material, which could tear the lining. If the installation surface plane is very rough, a protective layer, as described above, must be used. A pool with surfaces that meet our installation recommendations or those defined in the AFNOR leaflet will be able to take an **Alkorplan 2000**® membrane without the need to use a protective underlay.

Alkorplan 2000® linings are waterproof but permeable to water vapour. In the case of heated pools, a slight amount of condensation may form between the membrane and the pool.

Parts to be sealed

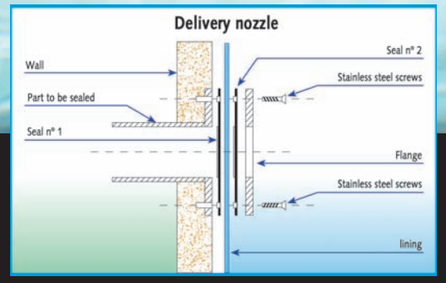
All the accessories (skimmers, delivery openings, floor bung, etc.) used in pools made watertight by an **Alkorplan 2000**® membrane, must be fitted with two seals and a screw clamping flange.

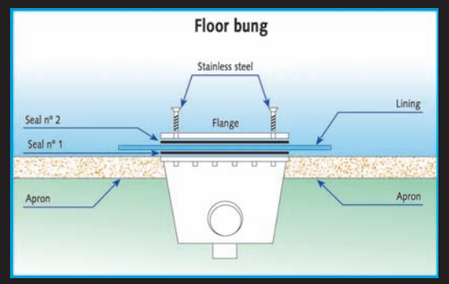
When constructing the pool, it will also be necessary to take the precaution of protecting these parts from concrete or mortar splashes which could obstruct them.

The parts to be sealed are fitted absolutely smoothly flush with the walls and base of the pool so as to avoid creating a vacuum or extra thickness under the lining, once it is in place.

The gaskets and clamping flanges of the parts to be sealed, which are placed over the material, will not be fitted until the water level has reached each of them.

See chapter "Site preparation" of this document for fitting the parts to be sealed.





Cutting

The cutting should be done using a large pair of scissors or a Stanley knife® with a hooked blade.

If scissors are used, the cutting line should be marked out beforehand with a lead pencil. For a Stanley knife®, a stainless steel ruler should be used.

Some cuts may be made "in contact" with the walls or floor of the pool so as to follow a complex shape, which is difficult to mark out, more closely. This technique should be used, in particular, for cutting out the treads and risers of stairs.

The cuts should be defined so as to reduce material off-cuts as much as possible and to give the most attractive result.

To this end, efforts must be made to ensure that the cuts are made symmetrically with respect to the axes of the pool (length and width) and, if possible, in its natural corners.

It must also be ensured that the cuts are not in the same place as the parts to be sealed as that would make it impossible to fit the waterproofing flange.

Welding Alkorplan 2000® lining

Alkorplan 2000® linings can be assembled in a uniform and watertight way using the hot air welding technique. Solvent welding is not to be used with the **Alkorplan 2000**® membrane for affecting the lacquer layer.

Hot-air welding

NECESSARY EQUIPMENT. This consists of a hot air welding tool (Leister type), fitted with a 20 mm welding nozzle, a pressure wheel, a wire brush and a scribing iron. To avoid damaging the resistance of the welding tool, set the thermostat to "0" before turning off the device and allow it to cool for a few minutes.

The ideal working temperature of these tools is around 450°C, which, depending on the outside temperature and that of the stand, corresponds to a setting of 6 or 7.

Carbonised PVC particles which may accumulate along the nozzle must be removed outside the pool with a wire brush.

The surfaces to be welded must be clean, dry and dustfree.

The linings should be unrolled, without being over-taut and allowing an overlap of at least 5 cm. of the different widths to be welded.

In order to carry out this operation successfully, it is advisable to mark out a few reference points on the lining with a lead pencil.

Remove from the welding surface any traces of soil or dirt. Once the widths have been correctly positioned, it is advisable to "tack" them with the Leister welder in order to stop them moving during welding.

The linings are welded by inserting the 20 mm nozzle between the two PVC widths to be welded. The heat will melt the upper layer of the two PVC surfaces. At the same time, pressure should be exerted on the welded surfaces using a rubber press-roller.

The weld seam must be uniform over a minimum width of 30 mm. It can be checked immediately.

One of the first hot weld seams to be made should be that of the PVC strip needed to hang up the vertical walls. The weld seam of the PVC strip must not, under any circumstances, be made with THF solvent.

Checking the welding

Once the hot air welding is finished, it is vital for it to be checked. The check is to be carried out using a scribing iron, by quickly moving it along the weld seam and applying constant pressure.

This will bring to light any welding defect.

Reinforcing the welding with liquid PVC

To prevent the risk of capillary action leaks as well as to achieve a better finish, it is essential for cold or hot weld seams to be reinforced with a liquid PVC seal. Liquid PVC is packed in 0.9 kg cans.

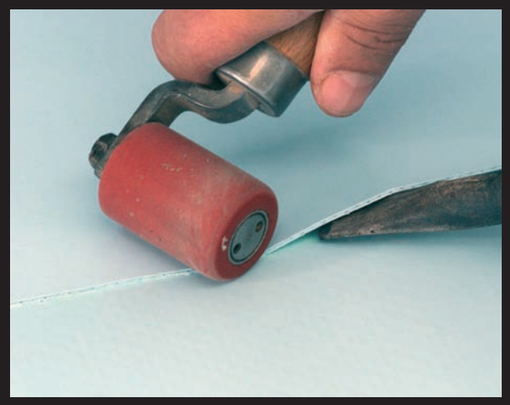
N.B.: the packing date is shown on the can. Liquid PVC is not necessarily out of date after being stored for over a year. Simply open the can and check how fluid the liquid PVC is. If the liquid PVC is not fluid enough (gelatinous appearance), it may be slightly diluted with THF. To do this, put into the can a measure of THF corresponding to the volume of the cap of the liquid PVC can. Shake thoroughly and renew the operation if necessary. Next, pour the necessary quantity of liquid PVC into the special applicator bottle for making the seals.

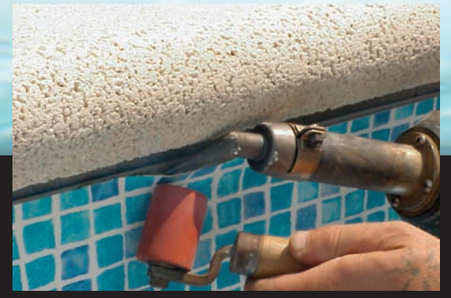
The pouring lip of the applicator bottle should be cut at an angle and not straight across. Smoking is, of course, prohibited during these steps. Carefully close the can again, unless empty, to stop the solvent evaporating.

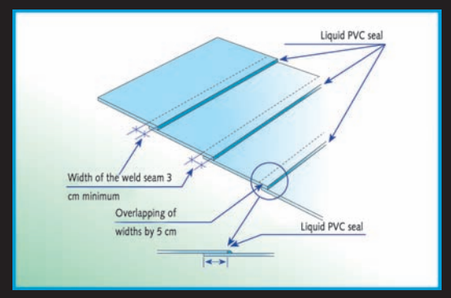
Apply the liquid PVC along the weld seam line and let it dry for a few minutes (the time required for this depends on the atmospheric conditions, temperature and humidity).

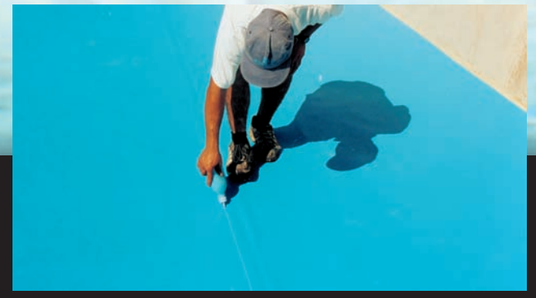
Liquid PVC can be applied only on a completely clean and dry weld seam. Regularly clean the pouring lip to stop it clogging up.

For a vertical application, start the seal about 20 cm from the bottom of the weld seam to allow the liquid PVC to run naturally downwards without letting it accumulate unnecessarily.









Attachment methods

Sections for hanging

The main technique consists of hanging up the lining in a section for hanging especially provided for this purpose.

This section, called "Hung", which should be made of rigid PVC or aluminium, must itself be mechanically attached to the pool.

There are two models of sections:
- A section to be attached flat, onto the levelling stone of the pool and in general under the brim. This section is mainly used for new constructions.
- A section to be attached to the vertical wall of the pool, in cases where the brim has already been laid. This section is often used to restore a pool when the brim cannot be taken up.

The hanging section (made of aluminium or PVC) should be mounted using expansion rivets, with 5 attachment points a metre.

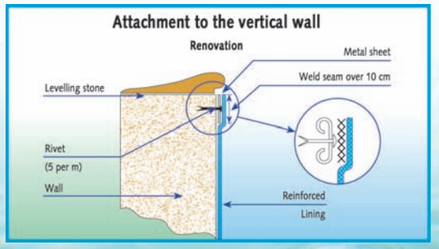
The precaution must be taken of making a watertight silicone seal between the section and the pool to stop water infiltrating behind the **Alkorplan 2000**® lining.

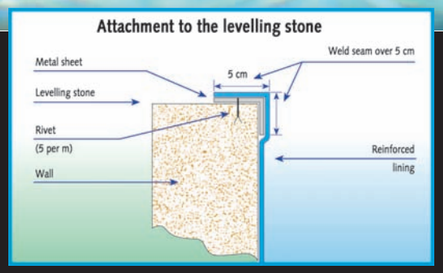
The **Alkorplan 2000**® membrane to which a PVC strip of approximately 9 m will have been welded should be inserted into the section and secured.

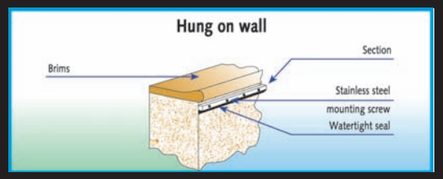
Metal sheets

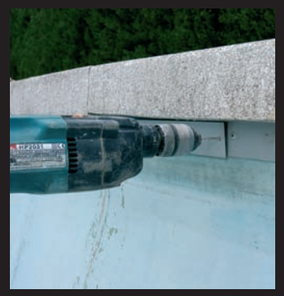
A second technique consists of attaching a metal sheet onto the perimeter of the pool using expansion rivets, with 5 attachment points a metre. The **Alkorplan 2000**® membrane is then welded directly onto the metal sheet.

The precaution must be taken of making a watertight silicone seal between the metal sheet and the pool.









Installation technique

The Site

The rolls of **Alkorplan 2000**® lining will be supplied on site in their original packaging to protect them against any risk. Check the condition of the site equipment and remove the protective packaging from the rolls of reinforced **Alkorplan 2000**® membrane.

Site preparation

The parts to be sealed (such as skimmers, floor bung, delivery openings, etc.) must be completely integral with the backing support. They must be absolutely clean.

Ensure, in particular, that the mounting holes of the clamping flanges are not blocked with cement.

Attach the first seals to the mating flanges of the skimmers, delivery openings, floor bung, floodlight, countercurrent swimming appliance, etc. To stop folds from forming, the various flanges of the parts to be sealed should be fitted only when the water level has reached them. The flange of the floor bung should be fitted as soon as it is covered by around 30 cm of water.

Thoroughly clean the pool and quickly check the walls and floor to ensure that no rough spots are visible on the backing surface after laying the lining.

Fitting reinforced **Alkorplan 2000**® linings is not very complex. In many cases, it will, above all, be a matter of good taste and ingenuity.

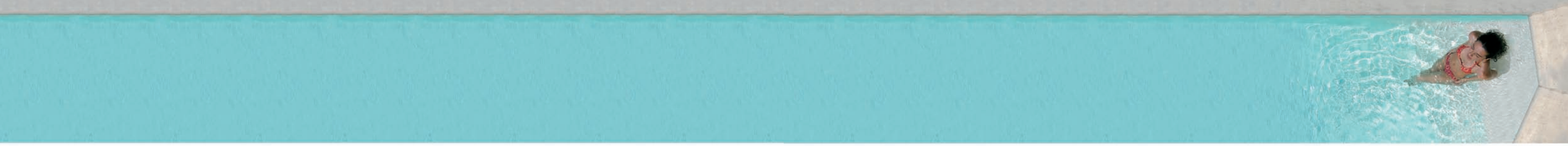
In some circumstances, such as when restoring an old pool, it may be necessary to lay protective/separating fleece treated against the formation of micro-organisms, before installing the **Alkorplan 2000**® lining.

In this case, care must be taken to accurately place the different widths edge to edge to avoid the overlap of the different layers of fleece being visible under the **Alkorplan 2000**® lining.

The fleece should be attached by gluing it to the floor and walls using Alkorplus 81043 adhesive. The **Alkorplan 2000**® membranes can be installed easily at temperatures over 10°C. At temperatures below 10°C, it is advisable to cover and/or heat the pool during the installation work. In rainy or snowy weather, it is advisable not to carry out the installation without protection.

Applying the lining

Good planning is often thought to be half the battle. It is also a good thing to remember that, when the estimate is drawn up, many aspects of the installation work have already been analysed.
Particularly careful attention is paid to organis-



ing the cutting, making every possible effort to avoid off-cuts.

The cut edges and weld seams should preferably be positioned in the natural corners of the pool and be symmetrical in relation to its main axes (length, width, height), being careful to ensure that none of them are placed on a part to be sealed, which would make it impossible to fit the sealing flange.

Whatever the shape and size of the pool, the order of tasks should always be more or less the same:

- lining the pool walls
- lining the pool floor
- making the vertical corners
- welding the walls to the floor of the pool.

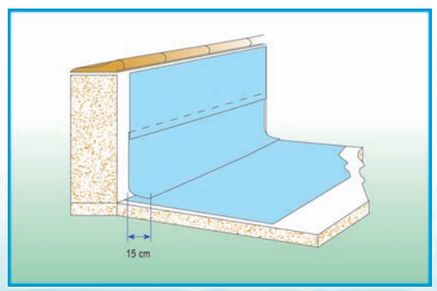
Fitting the walls

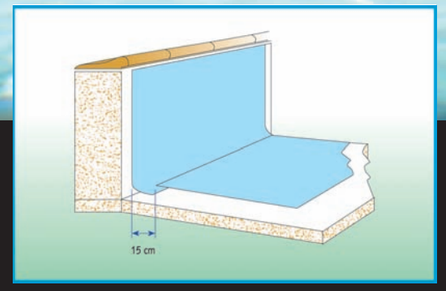
Generally, the sides of a pool should be covered independently of each other. In particular, do not attempt to "go around" a pool with a single roll! The **Alkorplan 2000**® membrane widths should be unrolled, horizontally, in one or more widths, according to the height of the vertical wall and allowing extra length of around 10 to 20 cm to enable the side panels to be welded to each other.

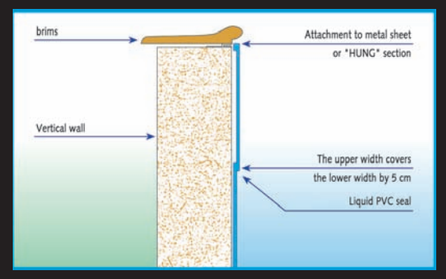
The reinforced **Alkorplan 2000**® membrane comes in several widths so that the vertical walls of a large number of pools can easily be covered.

- A width of 1.65 m for vertical walls not exceeding 1.55 m.
- A width of 2.05 m for vertical walls not exceeding 1.95 m.
- For vertical walls of over 1.95 m, two widths of the **Alkorplan 2000**® membrane must be overlapped horizontally.

In this case, the different widths may be pre-assembled flat so that the top width covers the lower width, thus making their weld seam almost invisible.







This technique avoids a large number of vertical weld seams, which may be considered unattractive.

An extra 10 to 20 cm breadth should also be allowed on the side panels to allow for easy welding of the **Alkorplan 2000**® vertical panels with the floor of the pool. In the case of a free-form pool, the floor should be welded on the extra 10 to 20 cm breadth allowed on the side panels.

To form an upper edging on the back and by means of hot air welding, the side panels made in this way should be fitted with the hanging section (9 mm strip or similar), which should be clipped into the rigid "hung" section attached to the pool (see paragraph 4).

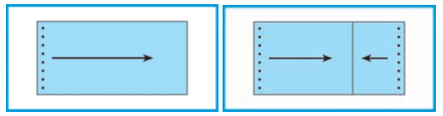
The side panels should then be welded, preferably in the different vertical corners of the pool, to make the welding as discreet as possible.

Flat floor

Laying the floor

Traditionally, the floor of a pool is generally laid in the width-wise direction of the pool so as to reduce the length of the material widths and consequently the offcuts. These different widths are then laid "like roof tiles" in the direction of the slope of the pool so that the extra thickness caused by welding two **Alkorplan 2000**® membrane widths together does not form an abutment in which dirt could accumulate, thus emphasising the visibility of the welding lines.

The different widths are cut 5 cm smaller than the width of the pool to allow 2.5 cm play on both sides of each width and to enable the material to become taut when water is poured in. The floor lining should be mechanically attached to the apron of the pool, two or three centimetres from the vertical wall and using special rivets (5 rivets per m), so that it cannot slip towards the large pool area. For a double-sloped pool, mechanical attachment should be provided from each slope.



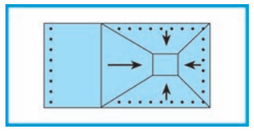
In the case of a flat base, although recommended, this attachment is not essential. A mechanical attachment may also be considered in all cases involving high levels of stress on the surface of the lining, e.g. balneotherapy pools.

Diving pool in truncated pyramid shape

Installing an **Alkorplan 2000**® lining in a pool fitted with a floor shaped like a "diamond tip" is easier if the following precautions are taken:

- make a base with a safety ledge
- use dimensions compatible with the maximum width of the material.

If the pool dimensions have been designed so that the different sloping planes of the diamond tip do not exceed the maximum width of the material or a multiple of it, the weld seams can be easily placed in the natural corners of the pool.

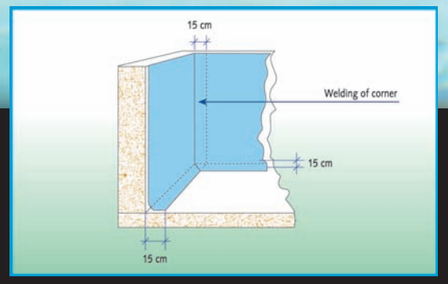


This is easy to do by accurately determining the profile of the pool floor. Similar to above, the material should be mechanically attached to the pool apron. In the case of a truncated pyramid- shaped pool, this attachment must be made over the breadth of the pool, on the side of the small pool area, and in the upper part of the truncated pyramid itself at the width of the large pool and the two lengths.

The pool should be filled with water and, in particular, the parts to be sealed should be cut as set out in paragraph 5.2.

As stated above, the side panels will have been 10 to 20 cm longer to allow these different side panels to be welded to each other. This weld seam should be made in the corner of the pool.

Making the vertical corners



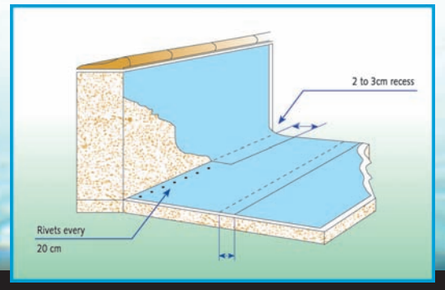
If the fitter so chooses, angular 90° corners or rounded forms with a radius of around 15 cm can easily be made. These extra lengths are generally allowed on the breadthwise panels. The corner should therefore be made on that extra length.

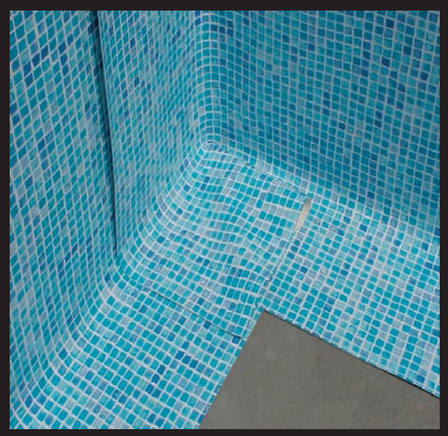
The lengthways panel is then precisely adjusted to the point of the angular corner or to the centre of the rounded form accordingly.

A 45° section should be made at each corner on the horizontal part of the side panel going back on the floor of the pool.

Assembling the walls and floor

When the pool sides are made, an extra 10 to 20 cm length will have been provided to allow the side panels to be welded to the floor of the pool.

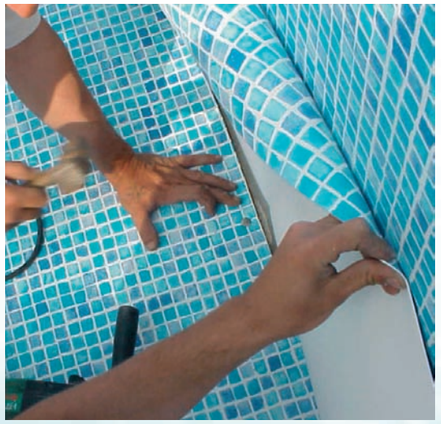


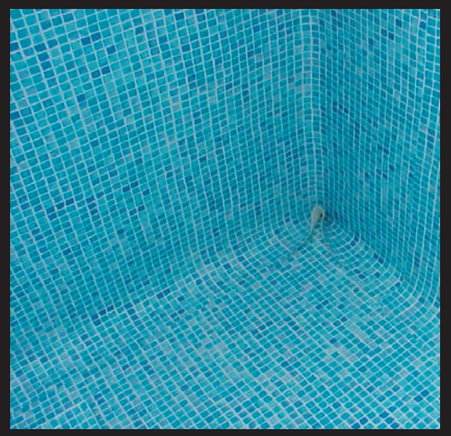


Traditionally:

- the side panels are welded over the top of the floor in all square, rectangular or more general polygonal pools;
- the side panels are welded under the floor of the pool in all free-form, round, oval, etc. pools.

Once the side panels have been hung onto the pool walls, it will undoubtedly be necessary to re-cut the part of the side panels going onto the floor so as to obtain an even turn-up over the whole pool perimeter.





Failure to apply this precaution would cause an uneven turn-up "in a billiard cue" shape, which would look very unattractive. This fault could even be perceptible, because of transparency, where the walls are welded under the floor.

Once this work has been done, it is then advisable to allow a certain amount of "vacuum" all around the pool where the sides and floor are welded.

This vacuum is obtained by slightly parting the side panel from the vertical wall of the pool. This gap depends on the height of the walls:

- 2 cm for walls under 1 m.
- 2.5 cm for walls between 1 and 1.50 m;
- 3 cm for walls between 1.50 and 2 m or more.

This space helps to make the lining taut under the pressure applied by the water and will avoid any ugly folds.

Riveting the pool floor will stop the lining moving when the material is being pressed taut.
For pools with a diving area, the average height should be taken into account. Apply the tension over the whole of the pool perimeter and hold the lining in that position with a series of hot welding points every 50 cm on the pool floor. Finally assemble the floor and sides.

N.B. A pool lined with a reinforced ***Alkorplan 2000***® *membrane must not, under any circumstances, have the slightest fold when being filled with water. The aim of the method described above is to remove marks resulting from storage or handling of the lining. It would be completely ineffective if there were folds.*

Non-slip protection

To make steps or any other part of the pool non-slip, **Alkorplan 2000**® non-slip lining (type 81116) can be used.

This lining may be either directly used as a watertight membrane or added to an existing membrane. In that case, the non-slip lining should be hot welded, and the weld seams should be reinforced with a liquid PVC seal.

Basic Points

16 steps to ensure the successful use of Alkorplan 2000® pool covering.

1. Overlap the sheet approximately 7 cm.
2. Puncture the sheet every 30-40 cm to avoid any slippage during fixing.
3. Use double soldaring to ensure successful fixing.
4. Verify the effectiveness of the 2nd soldering by slowly passing a bodkin between the sheets to see if it stops at a point that remains unsoldered.
5. To fix the sheeting in the perimeter, use:
   A/ Laminated sheet (Metal sheet + PVC covering).
   B/ Profile (PVC guide to insert "9 mm band").
6. In case of an irregular base – unevenness, poor application, etc. – it is advisable to use a "Geotextile" between the base and the sheet.
7. Disinfect the base with "**Alkorplus® 81052** " liquid treatment to avoid the formation of micro organisms later.
8. Improve waterproofing by impregnating all the soldering points with a PVC liquid.
9. Take the precaution of leaving at least 2 cm space on each side on the sheets placed at the bottom of the pool.
10. On the wall sheet mounted at the bottom, cut the sheet approximately 11cms from the internal angle.
11. Tighten 2cms towards the centre of the sheet mounted on the floor on each side – 'breaking'-
12. Mechanical fixing should be used in case of pronounced incline, on the upper sheets to avoid slippage.
13. Seal with neutral silicone in the space between the fixing and the corner stone.
14. Fill the pool with 40 cm of water before drainage and maintain until the sheeting is sufficiently tight to mount the other accessories (pumps, lights, skimmers, cleaners, etc.).
15. When the pool is renovated, always replace existing accessories with a double-jointed liner to ensure greater waterproofing and compatibility with sheet.
16. Avoid placing accessories on top of the solder.