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# LUCOBIT-WATERPROOFING MEMBRANES FOR SWIMMING POOLS

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... make better sealing

## **1.1 Requirements**

### **1.1.1 General**

Every swimming pool owner demands top quality of his pool. Not only must the pool remain watertight for many years, it should also look attractive.

### **1.1.2 Waterproof in membranes for swimming pools must satisfy these requirements**

- The liner must stand up to rugged treatment during installation and use. It must guarantee long-lasting watertightness.
- The liner must be easy and efficient to install.
- The finished pool must be attractive.
- The waterproofing membrane must have good ageing characteristics. The material must be compatible with the standard water-conditioning agents and systems.
- The membrane must be easy to clean and maintain.

All these criteria were fully considered as we developed the membrane made by LUCOBIT raw materials specifically for swimming pools. During application, and during use, you will be convinced.

### **1.1.3 Planning**

***A perfectly functioning swimming pool requires all of the following:***

- Careful planning (including detail drawings)
- Early selection of system and materials
- Detailed specifications for tenders
- Installation exclusively by specialised waterproofing experts
- Co-ordination and monitoring of the construction work
- Periodic maintenance and cleaning

***The membranes includes the following elements:***

- Membrane substrate (the pool structure, existing or new construction)
- Pressure-free drainage
- Levelling and drainage layer
- polymeric waterproofing membrane
- Connections to fittings
- Perimeter flashing

Swimming-pool membranes must be planned by experts and installed by specialised waterproofing companies. This ensures that your pool will look good and perform well for years to come.

## **1.2 System Recommendations**

### **1.2.1 Membrane substrate**

The pool structure must be properly designed to carry all loads and hydrostatic pressure. Deformation and settlement of the structure can lead to damage of the swimming-pool liner.

The substrate must be clean, smooth, and free of projections and gravel pockets. Any unevenness or grout from previous tile cladding must be smoothed out. Before beginning application of the membrane, the installer must inspect and accept the substrate.

### **1.2.2 Pressure-free drainage**

A pressure-free drainage system must be installed to carry away any water that might accumulate behind the membrane (for example, migrating water or condensation). The drain holes (minimum 20 mm diameter) should be located near the pool drain and/or at the lowest point of the pool. The number of holes depends on the pool size. If groundwater is present, the pool will require special construction measures. Specific recommendations of the planner or waterproofing expert must be followed. If water becomes trapped behind the membrane and is not removed, gaseous sulphur can form. The gas can diffuse through the polymeric waterproofing membrane and react with metals in the water. This produces dark metal sulphides that deposit on the membrane surface. Metals are introduced into the swimming-pool water by water-conditioning agents or metallic piping.

### **1.2.3 Levelling and drainage layer**

A 400g/m<sup>2</sup> white polyester mat is applied as a levelling and drainage layer. It smoothes out slight unevenness of the substrate and protects the polymeric waterproofing membrane against mechanical damage. The levelling and drainage layer does not substitute proper substrate preparation as described above. With the drainage action of membranes, groundwater or condensation can migrate to the lowest point, where it is carried off by the pressure-free drainage system. Membranes adhered directly to the prepared pool structure with an adhesive. Seams are butted (not lapped) to provide a neat appearance of the membrane that will follow.

### **1.2.4 Lucobit waterproofing membrane**

Membranes has a long life expectancy and does not rot. It is resistant to a broad range of chemicals and is treated against infestation by micro-organisms. This waterproofing membrane also has an outstanding eco-profile. This membrane is free of fungicides, heavy metals, and plasticizers.

The sheet is loose-laid one at a time over the levelling layer. Seams are lapped 8 to 10 cm and hot air welded. Workmanship and the method of installation must meet high standards of finished appearance.

The membrane sheets are to be laid out in a pattern that minimises seams. Usually the walls are covered first.

Then the floor is covered, the membrane welded to the wall membrane.

At the intersections between floor and wall a cove with radius of 2 to 3 cm should be provided.

At corners, intersections, and spotfastening points the membrane is welded or tack-welded to previously installed membrane-laminated flashing strips. The strips are normally butt-jointed and fastened to the substrate with rustproof impact anchors. Care must be taken that no sharp edges or corners protrude that could damage the membrane. The impact anchors should be sunk flush with the flashing strip so that anchor heads do not show through the membrane once it is applied.

If the membrane must be adhered instead of welded for technical reasons, special adhesive must be used.

### **1.2.5 Storage**

Membranes must be stored dry and protected from weather on the building site. By keeping the membrane clean and dry, seam preparation can be kept to a minimum.

### **1.2.6 Connections to fittings**

Special care must be given to perfectly sealing the membrane around all penetrations (inlet nozzles, skimmers, fasteners, mounts, etc.). All connections must use a stainless steel flange with clamping ring. Locally applicable standards and guidelines are to be observed, acc. DIN 18195. The flange must be set flush in the concrete so that a watertight connection can be executed in the same plane as the membrane.

### **1.2.7 Perimeter flashing**

Perimeter edging is executed using membrane-laminated flashing strips. The flashing strips must be formed to match the specific perimeter detail and then fastened to the pool structure. The edge is finished by welding the membrane over the flashing strips.

### 1.2.8 Finishing the installation

#### Final cleaning:

Once the installation is complete, the entire membrane surface is to be thoroughly cleaned with water and sponge or cloth.

### 1.2.9 General Installation Recommendations

Detailed recommendations for applying membranes are given in the Installation Guidelines.

A trial seam should be carried out at the beginning of each day to determine the exact welding parameters.

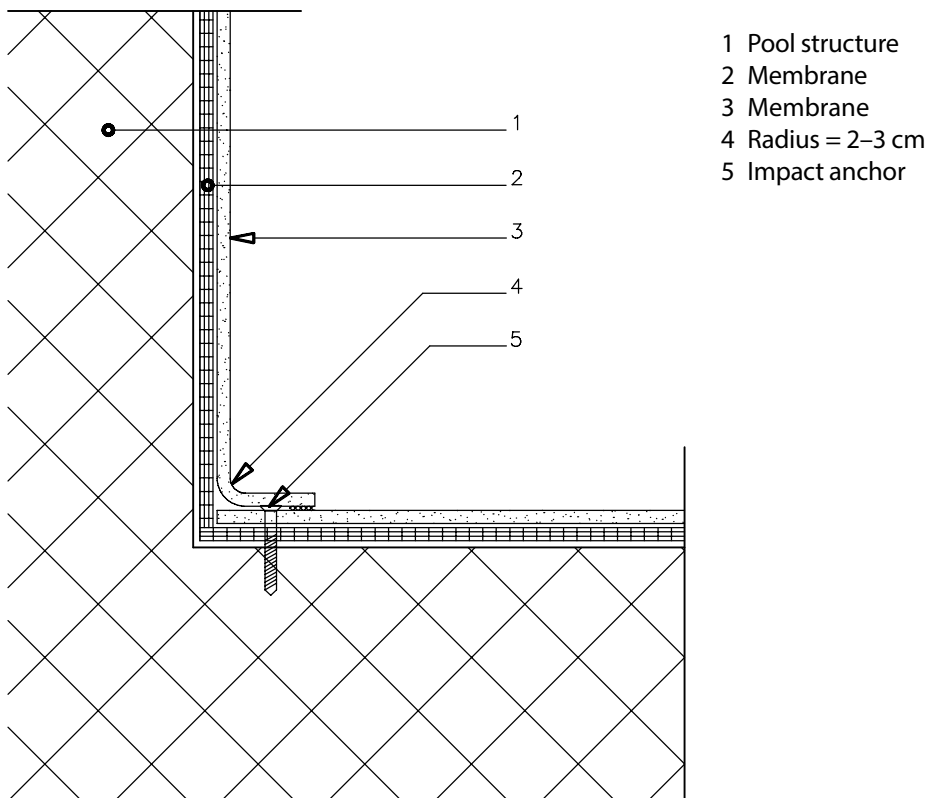
Layout lines and measuring marks are to be drawn using an extra-fine ballpoint pen. Markings must **always** be removed before welding. Pencil and felt-tipped pens are not suitable.

Objects that leave unsightly scuff marks on the membrane are to be avoided, including shoes with black soles, black electrical cords, etc.

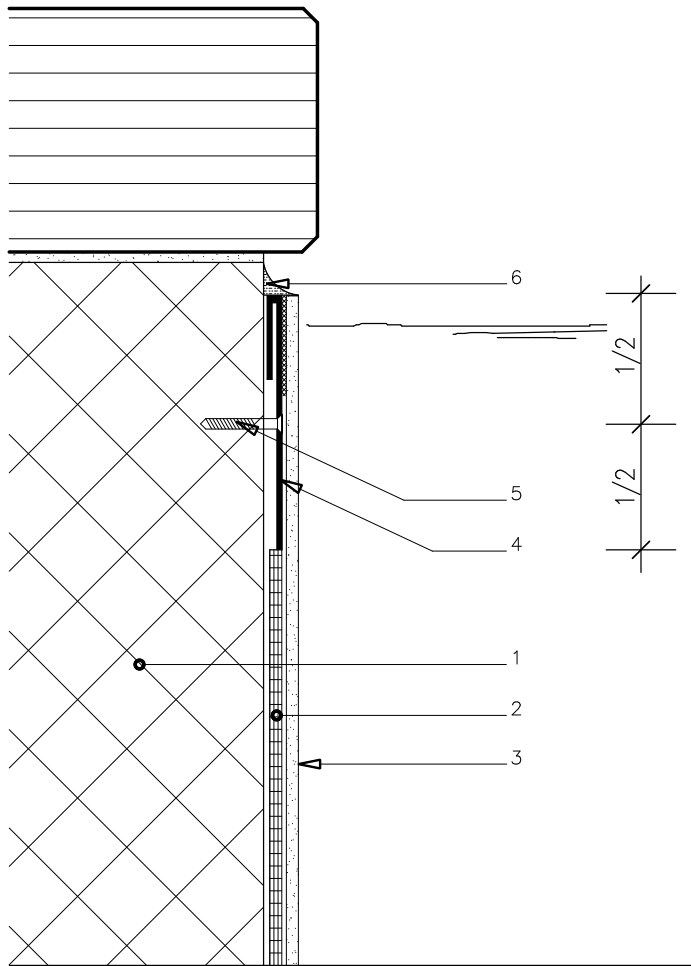
When laying the membrane, care must be taken that no buckling occurs. Glossy surfaces at seams can easily be dulled by rubbing with a clean dry cloth.

## 1.3 Detail drawings

### 1.3.1 Intersection at Floor and Wall

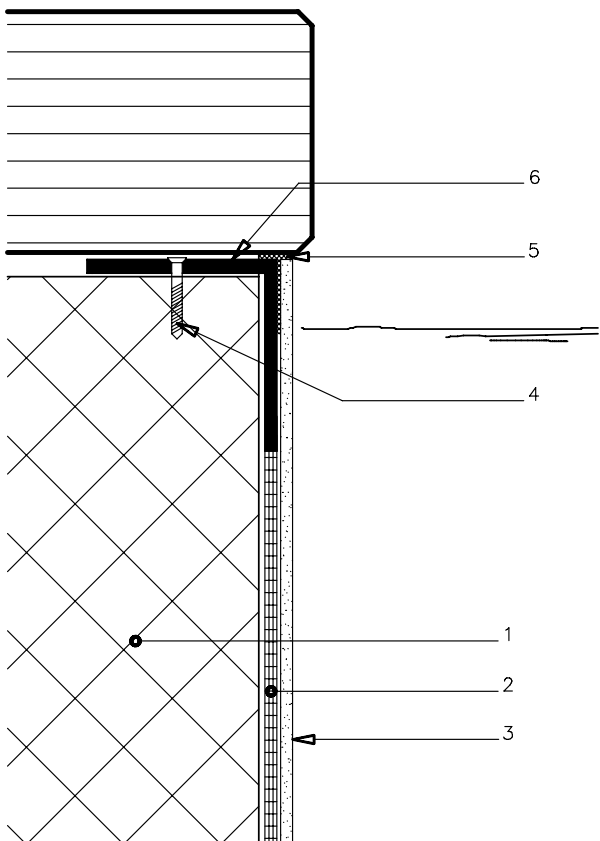


1.3.2 Edging with Laminated Flashing Strip



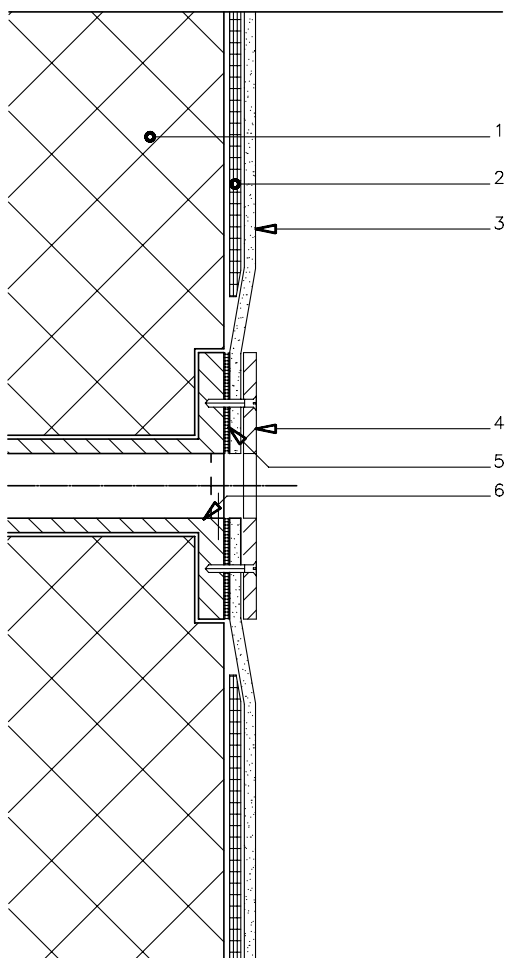
- 1 Pool structure
- 2 Membrane
- 3 Membrane
- 4 Lucobit laminated metal flashing strips
- 5 Impact anchor
- 6 Bed

1.3.3 Edging with Laminated Flashing Strip



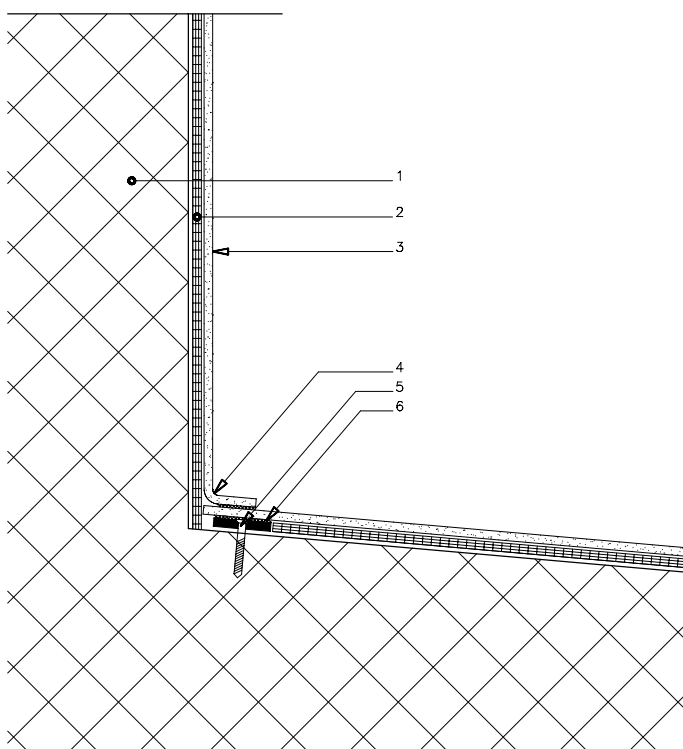
- 1 Pool structure
- 2 Membrane
- 3 Membrane
- 4 Impact anchor
- 5 Bed
- 6 Laminated metal flashing strips

### 1.3.4 Penetration, Flange with Clamping Ring



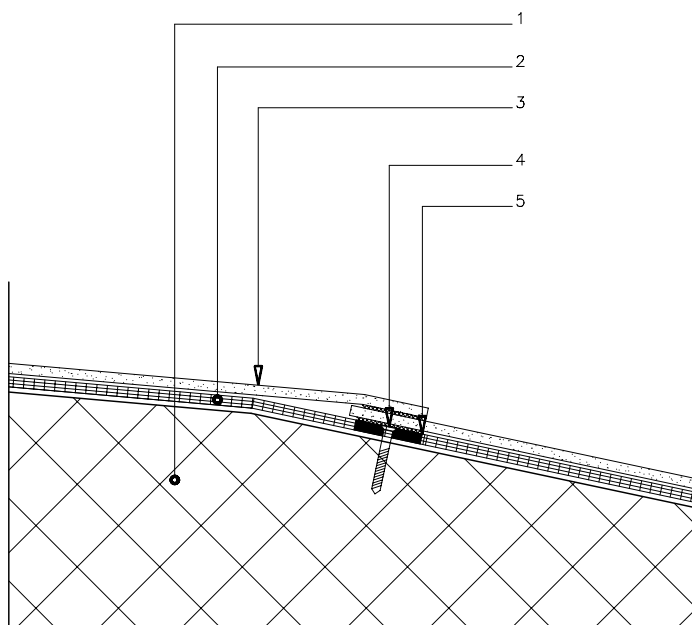
- 1 Pool structure
- 2 Membrane
- 3 Membrane
- 4 Clamping ring
- 5 Sealed with Lucofin® raw material
- 6 Flange (set flush in the concrete)

### 1.3.5 Intersection at Sloping Floor and Wall



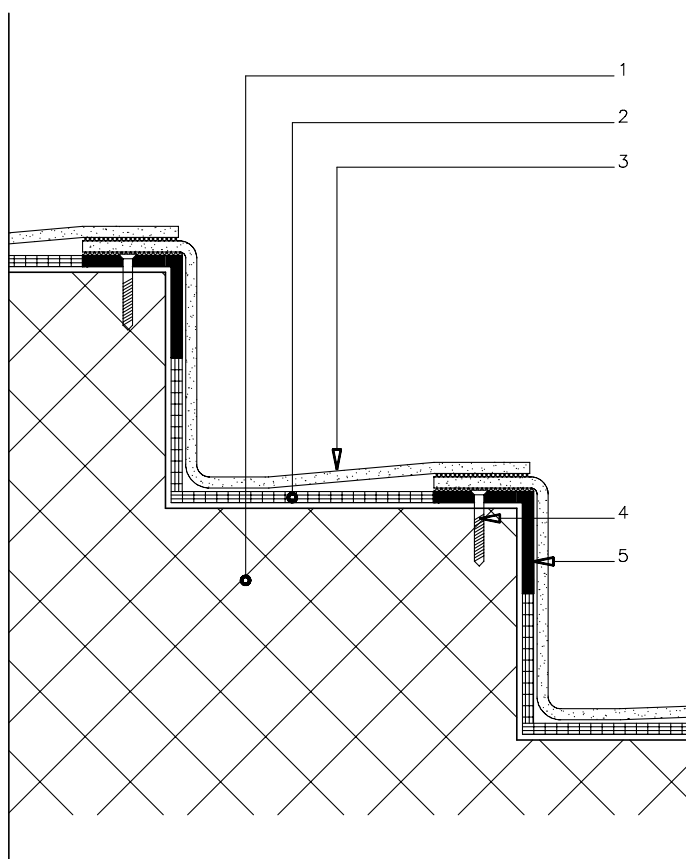
- 1 Pool structure
- 2 Membrane
- 3 Membrane
- 4 Radius = 2–3 cm
- 5 Impact anchor
- 6 Laminated metal flashing strips with Lucofin® raw material

### 1.3.6 Change in Slope of Pool Floor



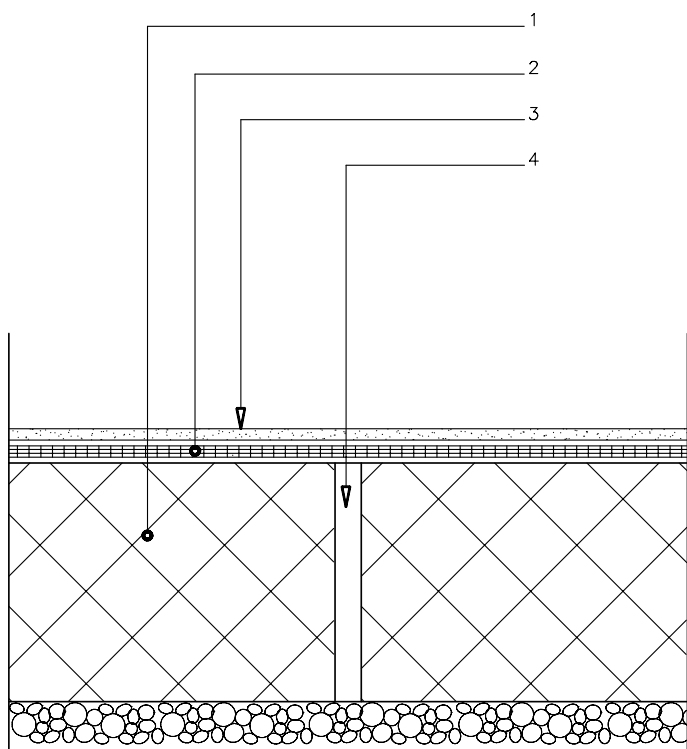
- 1 Pool structure
- 2 Membrane
- 3 Membrane
- 4 Impact anchor
- 5 Laminated metal flashing strips with Lucofin®

### 1.3.7 Stair Surfacing



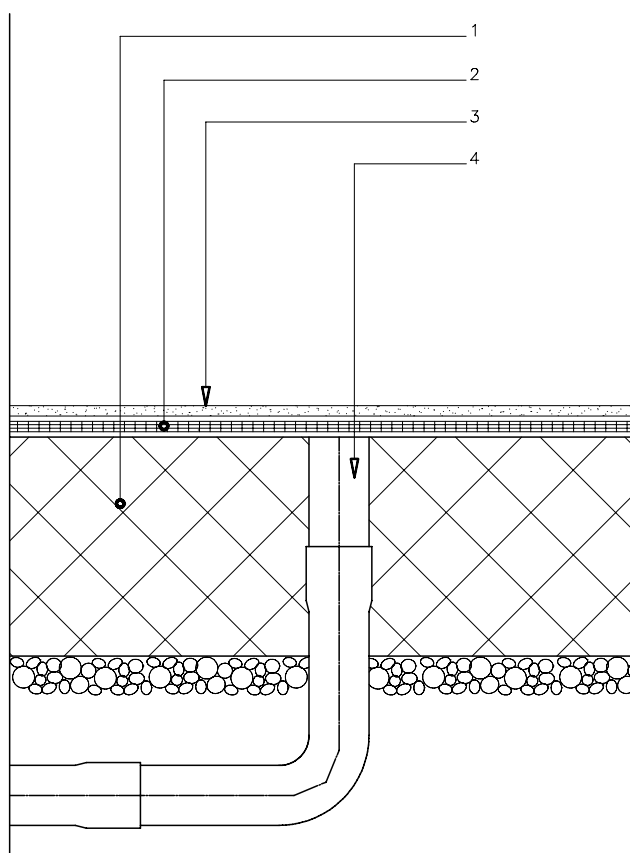
- 1 Pool structure
- 2 Membrane
- 3 Membrane
- 4 Impact anchor
- 5 Laminated metal flashing strips with Lucofin®

### 1.3.8 Pressure-Free Drain



- 1 Pool structure
- 2 Membrane
- 3 Membrane
- 4 Drain hole, minimum 20 mm diameter

### 1.3.9 Pressure-Free Drain (Groundwater)

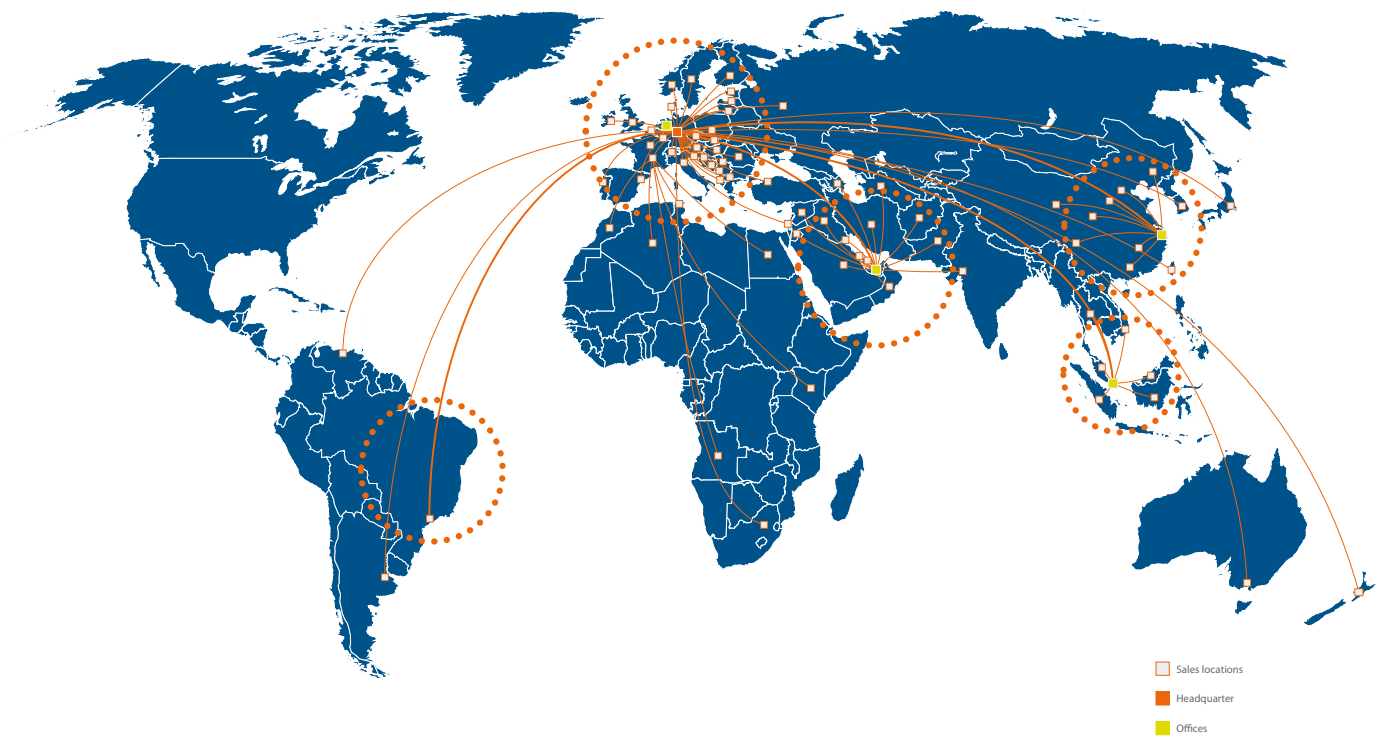


- 1 Pool structure
- 2 Membrane
- 3 Membrane
- 4 Pressure-free drainage with pipes



## LOCATIONS

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