

Water Purification in the Gargazon Natural Bath

In order to meet our stringent water quality standards, we rely on the self-purifying mechanisms of natural bodies of water, but also on our plant filter system, through which the water passes in a closed circuit.

The Plant Filter System

The filter basins are planted with reeds and floating pond plants as well as underwater plants. These plants hold back suspended particles like a filter. The water plants compete with the phytoplankton for nutrients, and are able to absorb large quantities of nutrients, especially phosphorus. Their roots have bacteriocidal properties and keep the soil hydraulically permeable. The regeneration zone offers optimal living conditions for the zooplankton. It is responsible for filtering out the single-celled algae and bacteria from the water.

The plant filter system consists of the following:

- a periodically dry vertical filter of the model Neptune
- a vertical filter adjacent to the basin with aquacultures acting as an underwater filter and retreat zone for the zooplankton.

The vertical filter basins are filled with fine-grained soil material through which water flows from the top to the bottom. The water is pumped by three pumps. The purified water from the plant filter system is returned to the bathing area via air stones.

Purification

In order to guarantee both the suctioning-off of floating matter from the water surface and the proper circulation of water throughout the natural bathing ponds, surface skimmers, overflow weirs, and overflow gutters have been installed on four sides of the pond. They have a capacity of approx. 80-340 m³/h; three pump stations are in operation, so that the pond's entire volume of water (max. 2350 m³) can be recirculated within 0.4 days. The cleaned water is returned to the pond via a plant filter passage on the vertical basin walls and via air stones on the beach and via reverse drainage lines underneath the pebble beaches in the non-swimmer area.

During the bathing season, the non-swimming, swimming, and diving basins are cleaned several times a week by a cleaning robot. In the spring of every year, all of the sediments are removed from the natural bathing ponds by means of high-pressure jet cleaning.

Maintenance and Operation

In order to maintain the water quality of the natural bathing ponds over a long period of time and to achieve optimal conditions, it is necessary that the following maintenance rules be observed:

- The limit values of the filling water must be maintained.
- Dead reeds must be mown and the cuttings removed in February/March of each year.
- The swamp and underwater plants should be reduced (i.e., cut off below the water line and removed) in the summer of every one or two years.
- The foliage of the shrubs and trees on the shoreline should not project out over the water and, if necessary, should be pruned regularly.
- In order to prevent the release of nutrients from the sediments, the mud should be removed annually. The use of fully automatic mud suctioning equipment is recommended.
- Visitors are reminded that they should shower before entering the water. No urine is to enter the water.
- Do not venture into the shore of the regeneration zone.
- Absolutely no fertilizers are to be applied within 10 meters of the pond.
- The small bathing pool / swimming basin must be emptied and refilled annually.