



Water Park Bambados

The Water park Bambados located in the city of Bamberg is the first indoor swimming area in Europe built in combination with a passive house construction.

The bath area includes 7 pools with a total water surface of 1796 m², connected to 5 ultrafiltration units which purify in full flow between 56 m³/h and 231 m³/h resulting in a combined flow rate of 692 m³/h. It is no coincidence that for water treatment of a bath built in passive house construction, the ultrafiltration process was chosen.

According to the Passive House standards and the promotion of energy-optimized building (ENOB) building owners and designers attached great importance to energy efficiency with optimal effectiveness resulting in correspondingly low consumption of water and heat.

For the water treatment the process-combination with "flocculation-ultrafiltration-chlorination-UVW" is selected in accordance with DIN draft 19643-4. Accordingly the calculation of volume flows for each basin was done using half the flow rate of the multi-layer filter. All pumps for filtration and rinsing of the modules are fitted with frequency modulators. Due to the 3-street set-up of all UF-plants it was not necessary to install rinsing water containers and associated pumps. The rinsing effluent of all UF plants is collected in a storage tank and after treatment with a separate ultrafiltration unit and downstream reverse osmosis system plus chlorination according to DIN 19645, type 1, it is returned as fill water to the corresponding circulation plants.

To reduce evaporation losses during daytime newly developed and optimized trench systems were used. In night mode, the return water is extracted below the water surface. For this purpose, an additional draining system was installed.

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Plant characteristics

5 ultrafiltration circulation plants

Circulating a total of **700,5 m³/h**
Pool area total **1796 m²**

Circulation plant 1

Swimming pool 50 m, 1050 m²

Total plant volume flow: **231 m³ / h**

Circulation plant 2

Recreational pool 355 m²

Volume flow: **187 m³ / h**

Parents-child pool 55 m²

Volume flow: **28 m³ / h**

Total plant volume flow: **215 m³ / h**

Circulation plant 3

Swim teaching pool
with integrated movable floor 133 m²

Volume flow: **50 m³ / h**

Teaching pool 2: 133 m²

Volume flow: **50 m³ / h**

Total plant volume flow: **100 m³ / h**

Circulation plant 4

Slide area *

1 Aqua River (Whitewater River) **720 m³ / h**

2 Rafting slide (tire slide) **360 m³ / h**

1 Turbo slide, option **90 m³ / h**

Total plant volume flow: **1770 m³ / h**

* All slides were equipped with flat outlets. The water from all slides flows in a shared storage tank and from there into the filter plant - capacity 90 m³ / h. During operation downtimes of slides and landing pools the water is emptied into the storage tank (110 m³)

Circulation plant 5

Plunge pools and a Kneipp pool
with conventional multi-layer fiberglass filters.

Total plant volume flow: **8,5 m³ / h**

Circulation plant 6

Leisure outdoor pool, 70 m²

Total plant volume flow: **56 m³ / h**

Plant 7

Rinse water treatment in accordance with DIN 19645, type 1
using ultrafiltration and reverse osmosis,

Raw water Ultrafiltration **4 m³ / h**

Reverse osmosis permeate **3 m³ / h**



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