

Pool heat demand calculation

Pooldata:

Input

Result

Length	7	m	Volume	39,2	m ³
Width	4	m	Interface	28	m ²
Depth	1,4	m	Pool Wall	58,8	m ²
Air-Outside temperature	6	°C			
Target water temperature	30	°C			
U-Value Pool cover *	7,5	W/m ² x K			
U-Value Pool Wall	2	W/m ² x K			

Heat loss over the surface:* $Q_a = 5040$ W
 Heat loss over the Pool Wall: $Q_w = 3488$ W

Total heat loss : $Q_{ges} = 8528$ W

Different U-values

Bubble Wrap	ca.	3	W/m ² x K
Single Glass	ca.	5	W/m ² x K
Insulated Glass	ca.	3	W/m ² x K
Concrete 15cm	ca.	4,35	W/m ² x K
Concrete 20cm	ca.	4	W/m ² x K
Resin 1cm	ca.	4,9	W/m ² x K

*Without cover: Specify U-values of convection loss

Confektion loss

in calm	ca.	7,5	W/m ² x K
in Medium Wind	ca.	25	W/m ² x K

Evaporation and radiation

In T=24° and Medium Wind to 20l / m² / Day

Evaporation [kWh/d]/0,68 = Evaporated water Quantity

V= Qd / 0,68

Qd = V/0,68

Operating conditions: 6 °C

Heat loss 8,5 kW
 Heat requirement per day 205 kWh
 Filter Run time 24 h

Required heating capacity 8,5 kW

(Plan a 20% power reserve !)

	Need	Available
6°	8,5kW	6,5kW
10°	7,7kW	7,8kW
15°	6,6kW	9,4kW