

# Pool heating

Your pool is as beautiful as the water is warm.

The BADU BK heating system means you don't have to agonize over the environment or your purse strings to have warm water: warmth comes from the sun ...





## Functionality

The warmth of the sun, absolutely free. The BADU BK solar panel series brings warm water to your pool simply with a few rays of sun and without any heating charges. Furthermore it is completely environmentally friendly as there is no CO<sub>2</sub> pollution. The solar panel unit pays for itself within the first few years - and you'll get more from your heated pool as you'll be able to use it more often.

The pool heating is a system of external swimming pool solar panels and a bypass pipe connection to your pool. The circulation pump, or an additional pump, leads the filtered water through the heating system when necessary and returns the heated water to your pool.

As soon as the surroundings are warmer than the pool water, the pool heating can be turned on by opening the shut-off valve. It can be turned off again by closing the shut-off valve so that the water is still refreshingly cool in high season. This can also be controlled automatically with the BADU Logic pool control, see pages 136-137. It's practically impossible to heat your pool in a simpler and more intelligent way.

The BADU BK swimming pool solar panels are made from high quality polypropylene. Therefore they are UV-resistant, weather-proof and resistant to swimming pool water as well as the chemicals in it. The d 50 mm welded headers with socket connections are also made from polypropylene and are therefore just as resistant and durable.

## Economic efficiency

Calculation example for the BADU BK solar panel unit in an outdoor pool.

### Pool situation

Pool surface ..... 32 m<sup>2</sup>  
Pool volume ..... 45 m<sup>3</sup>  
Desired water temperature ..... approx. 24 °C

- Outdoor pool with pool cover to avoid heat loss
- Bathing season from May to September
- Heat requirement during this time is 16,000 kWh

### Required panel surface

The pool's water surface, the presence of a pool cover and the positioning and inclination of the panels are deciding factors when configuring the required panel surface.  
32 m<sup>2</sup> x 0.7 x 1.2 = approx. 27 m<sup>2</sup>

**Cost of a BADU BK swimming pool solar panel unit incl. assembly and control technology** ..... approx. 4,500.00 €

**Cost without a BADU BK swimming pool solar panel unit, using an oil heating unit** ..... approx. 1,600.00 € per year

The amortisation period for a BADU BK swimming pool solar panel unit is less than three years.

The example is based on basic oil heating charges of 0.85 €/l as well as panel positioning towards the south with a 60° horizontal inclination.

Pool surface x pool cover correction factor x positioning/inclination correction factor = required panel surface

Assembly may only be carried out by a trained professional. Assembly materials must be provided on site.

The total cost is an estimated point of reference based on information from installation companies.

# BADU® BK 250 / BK 370

Environmentally friendly solar heating for your pool.  
 Extend your swimming season with the BADU BK solar panel.

## Panel surface calculation example

4 m x 8 m pool dimensions = 32 m<sup>2</sup> pool surface

$$\text{Number of panels} > \frac{\text{pool surface}}{\text{panel surface}} > \frac{32.0 \text{ m}^2}{3.70 \text{ m}^2} > 8.65 \times 0.7 (70\%) > 6.06 > 6 \text{ units}$$

With this example you are able to calculate the number of panels required. In this case we have calculated a requirement of 6 BADU BK 370 panels. This value can vary depending on the direction and inclination of the pool heating.

**Note:** In Central Europe the panel surface should correspond to the pool surface in size. If a cover is used to minimise heat loss, the panel surface is reduced to 70 % of the pool surface.

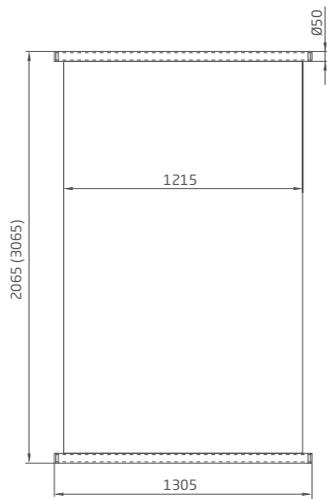
Technical data	BADU BK	370	370 R	250	250 R
Surface (m <sup>2</sup> )		3.70	3.70	2.50	2.50
Weight without water (kg)		9	17	7	12
Weight with water (kg)		19	27	13	18
Operating pressure (bar) max.		1.50	1.50	1.50	1.50
Flow rate (l/h)		1000	1000	750	750
Collector pipe with socket connection (mm)		50	50	50	50
Flow resistance (m)	with 4 panels	0.14	0.14	0.14	0.14
Flow resistance (m)	with 6 panels	0.40	0.40	0.40	0.40
Flow resistance (m)	with 8 panels	0.90	0.90	0.90	0.90
Flow resistance (m)	with 10 panels	1.70	1.70	1.70	1.70
Net weight (kg)		9.00	23.00	7.00	15.00

R = with frame. Max. 10 panels can be installed in one bank.

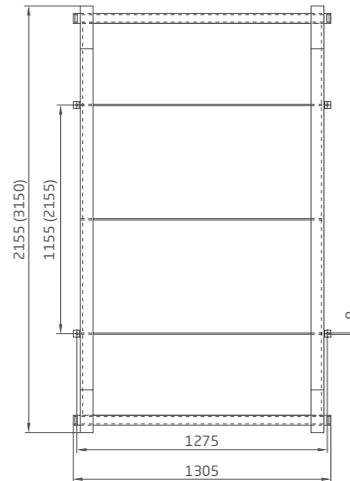
Article no	Description
250.2000.000	BADU BK 250 solar panel
250.4000.000	Aluminium frame for BADU BK 250
250.1000.000	BADU BK 370 solar panel
250.3000.000	Aluminium frame for BADU BK 370

**Dimensions** Dimensions in brackets for BADU BK 370. Possible dimensional tolerances  $\pm 1\%$ .

Detailed dimensions on request or at badu.de



Individual solar panel

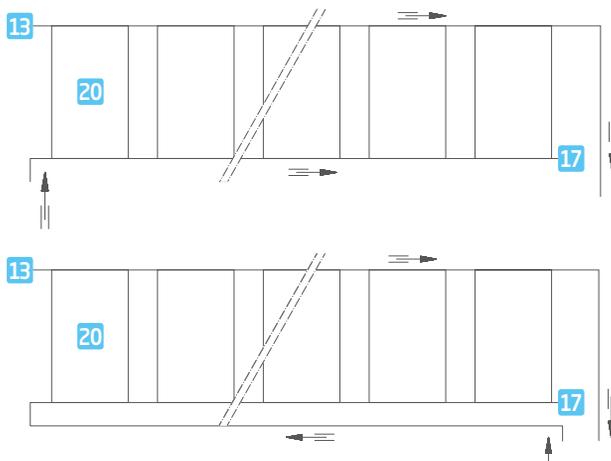


Solar panel in aluminium frame

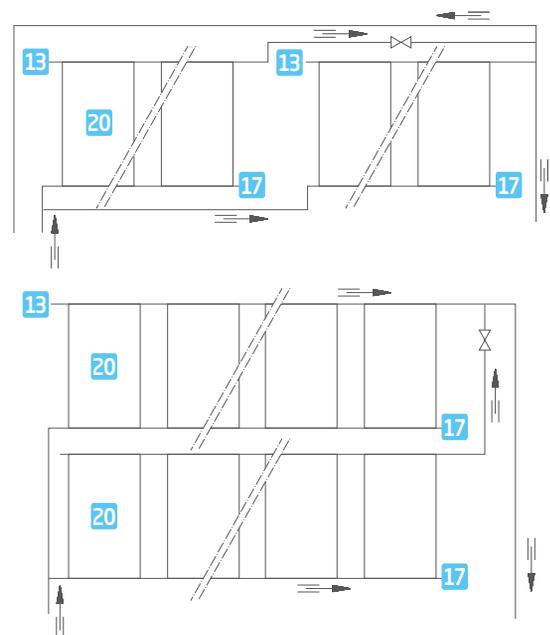


Side view

### Installation



Installation example for solar panels in one bank  
(max. 10 panels per bank)



Installation example for solar panels in two banks  
(max. 10 panels per bank)

#### Configuring the pump's delivery head ( $H_{total}$ )

$H_{total}$  = Difference in height between the water level and the highest point of the panels plus the resistance inside the panels, pipes, fittings and other individual resistances (filter, backwash valve, nozzles etc).

- 20 BADU BK solar panel
- 17 End plug
- 13 Aeration and ventilation valve

# BADU® BK 250 / BK 370 sets

The BADU BK solar panel as a complete set.  
Use the sun simply, fast and cost-effectively for your pool.

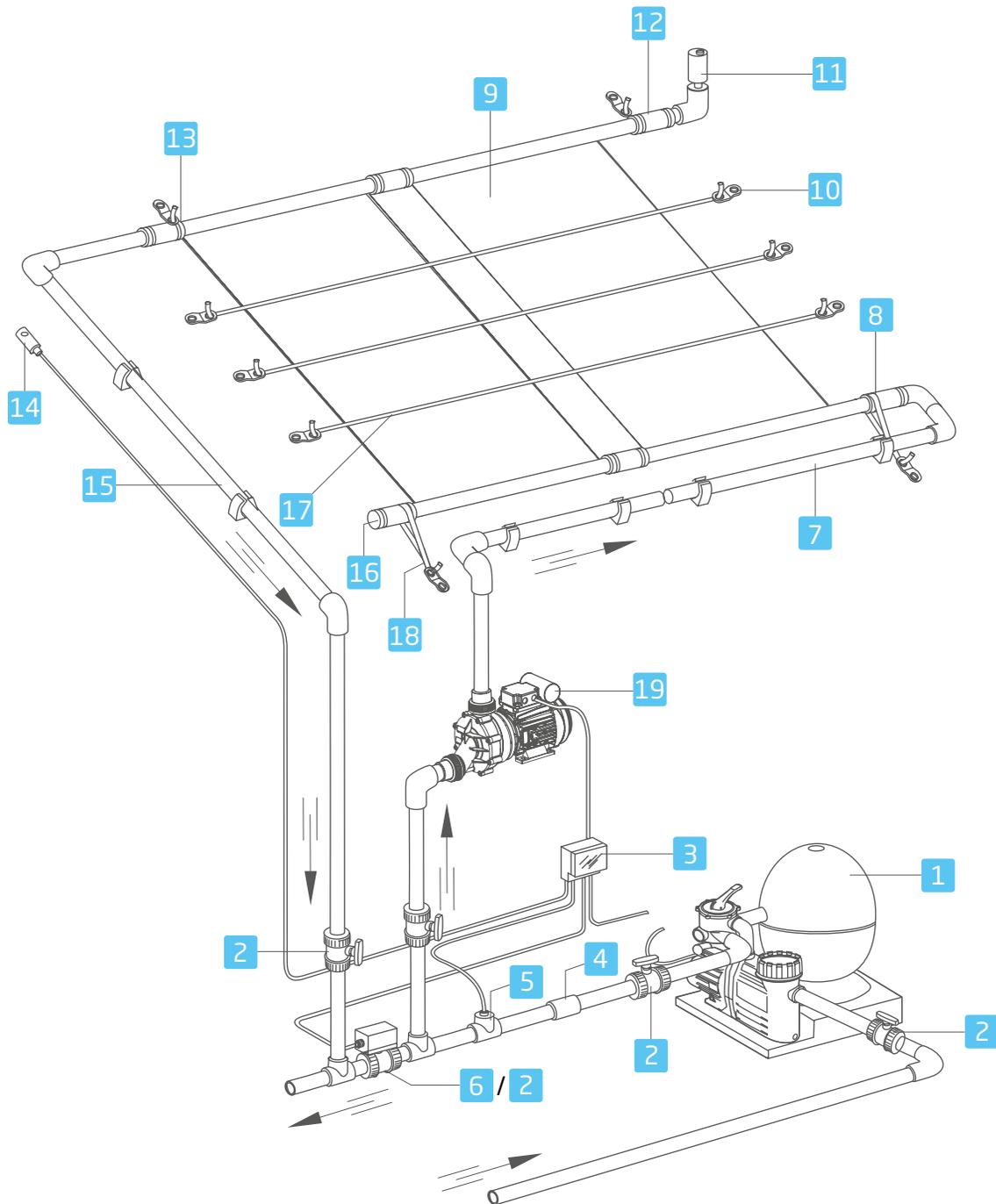


## Design

Our solar panels are available in sets. These include the required amount of solar panels as well as appropriate accessories. Therefore you save time configuring the solar panels and can bring the sun's warmth to your pool even quicker.

- 1 Solar panel BADU BK 250 or BADU BK 370
- 2 Panel connectors
- 3 Hose clamps
- 4 Vent unit R ¾
- 5 Plastic double eyelet
- 6 End plugs
- 7 Elbow for vent unit
- 8 Polyester tape

Article no	Description
250.2020.000	Solar panel set, 2 x BADU BK 250 with accessories
250.2030.000	Solar panel set, 3 x BADU BK 250 with accessories
250.2040.000	Solar panel set, 4 x BADU BK 250 with accessories
250.2050.000	Solar panel set, 5 x BADU BK 250 with accessories
250.2060.000	Solar panel set, 6 x BADU BK 250 with accessories
250.1020.000	Solar panel set, 2 x BADU BK 370 with accessories
250.1030.000	Solar panel set, 3 x BADU BK 370 with accessories
250.1040.000	Solar panel set, 4 x BADU BK 370 with accessories
250.1050.000	Solar panel set, 5 x BADU BK 370 with accessories
250.1060.000	Solar panel set, 6 x BADU BK 370 with accessories



- |   |                                    |                                      |                              |
|---|------------------------------------|--------------------------------------|------------------------------|
| 1 Filter unit with pump                       | 6 Actuator or ball valve           | 11 Vent unit                         | 16 End plug                  |
| 2 Ball valve                                  | 7 Feed pipe                        | 12 Panel connectors                  | 17 Long polyester tape       |
| 3 BADU Logic pool control, optional           | 8 Inlet - BADU BK solar panel unit | 13 Outlet - BADU BK solar panel unit | 18 Short polyester tape      |
| 4 Non-return valve                            | 9 BADU BK solar panel              | 14 Air temperature sensor            | 19 Additional pump, optional |
| 5 Sensor for water temperature with T-fitting | 10 Double eyelet                   | 15 Return pipe                       |                              |