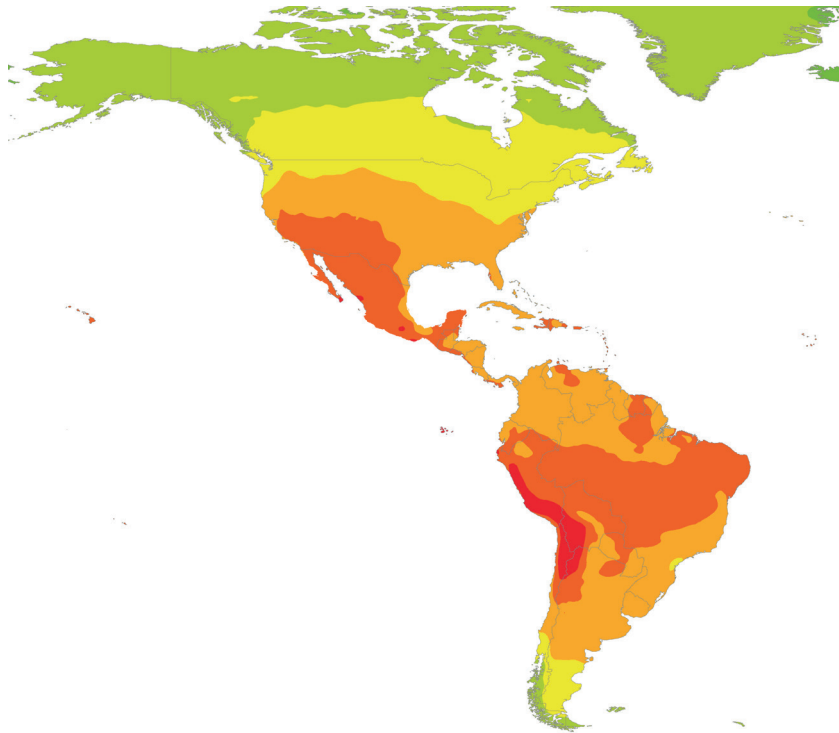
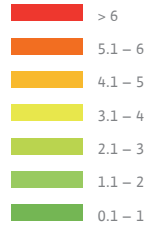


Easy selection guide for solar pump systems

America



Daily exposure to the sun in kWh/m²/d



Meteonorm 7.3
(www.meteonorm.com)
Uncertainty 8 %
Period: 1991 – 2010
Grid cell size: 0.125 °

Easy planning for your individual requirements

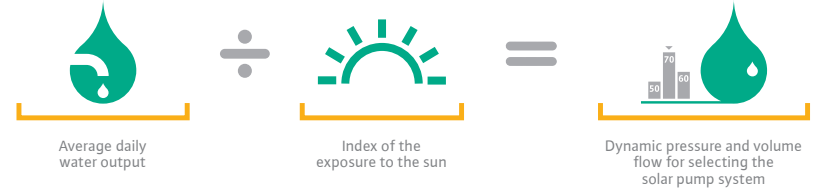
The geographical conditions on site play a crucial role when using submersible pumps with solar power. Different regions are subject to more or less exposure to sunlight and this affects the volume flow of our solutions.

Here are guide values for the average hours of sunshine in your region to enable you to design your solution better. You are welcome to use our configuration service and our online solar.wilo.com configuration software as part of your configuration.



Calculation

Calculate the typical volume flow for selecting the solar pump system.



See calculation example on the rear.

- ▶ Optimum water output
- ▶ Maximum efficiency
- ▶ Easy commissioning
- ▶ Maximum service life and operational reliability
- ▶ Unrivalled convenience thanks to Wilo-Solar Connect in the Wilo-Assistant app



Wilo-Actun OPTI-MS



Wilo-Actun OPTI-QS

Easy selection guide for solar pump systems

Delivery head	Wilo-Actun OPTI-MS					Wilo-Actun OPTI-QS					
	Volume flow	1 m³/h P S TF	3 m³/h P S TF	5 m³/h P S TF	7 m³/h P S TF	9 m³/h P S TF	Volume flow	1 m³/h P S TF	3 m³/h P S TF	5 m³/h P S TF	7 m³/h P S TF
20 m		OPTI MSI4.05-04 4 1 5.3	OPTI MSI4.05-04 4 1 5.3	OPTI MSI4.05-04 4 1 5.3	OPTI MSI4.08-03 5 1 7.5	OPTI MSI4.05-04 6 1 9		OPTI QSH4.06-04 3 1 3.9	OPTI QSH4.06-04 3 1 3.9	OPTI QSH4.06-04 4 1 5.5	OPTI QSH4.06-04 6 2 7.2
30 m		OPTI MSI4.05-04 4 1 4	OPTI MSI4.05-04 4 1 4	OPTI MSI4.05-04 5 1 5	OPTI MSI4.08-03 6 1 7	OPTI MSI4.08-03 9 1 9.6		OPTI QSH4.02-01 3 1 2.8	OPTI QSH4.02-01 3 1 2.8		
40 m		OPTI MSI4.05-04 4 1 2.6	OPTI MSI4.05-04 5 1 3.5	OPTI MSI4.05-04 7 1 5.2	OPTI MSI4.08-05 9 1 7.5	OPTI MSI4.08-05 14 2 12.6		OPTI QSH4.02-01 3 1 2.7	OPTI QSH4.02-01 3 1 2.8		
50 m		OPTI MSH4.02-02 4 1 3	OPTI MSH4.02-02 4 1 3	OPTI MSI4.05-08 8 1 5	OPTI MSI4.08-05 10 2 7	OPTI MSI4.08-05 14 2 9		OPTI QSH4.02-01 3 1 2.5	OPTI QSH4.02-01 4 1 2.8		
60 m		OPTI MSH4.02-02 4 1 2.7	OPTI MSH4.02-02 5 1 2.8	OPTI MSI4.05-08 10 1 5.2	OPTI MSI4.08-05 14 2 7.5			OPTI QSH4.02-01 3 1 2.1	OPTI QSH4.02-01 6 1 2		
70 m		OPTI MSH4.02-02 4 1 2.5	OPTI MSH4.02-02 5 1 2.7	OPTI MSI4.05-08 14 2 6				OPTI QSH4.01-02 3 1 1.3			
80 m		OPTI MSH4.02-02 4 1 2	OPTI MSH4.02-02 6 1 2.8	OPTI MSI4.05-08 14 2 5.5				OPTI QSH4.01-02 3 1 1.3			
90 m		OPTI MSH4.02-02 4 1 1.6	OPTI MSH4.02-02 7 1 2.8	OPTI MSI4.05-08 14 2 5				OPTI QSH4.01-02 3 1 1.2			
100 m		OPTI MSH4.02-02 4 1 1.3	OPTI MSH4.02-02 8 1 2.8					OPTI QSH4.01-02 3 1 1.2			
110 m		OPTI MSH4.01-03 4 1 1.3						OPTI QSH4.01-02 3 1 1.1			
120 m		OPTI MSH4.01-03 4 1 1.2						OPTI QSH4.01-02 4 1 1.2			
150 m		OPTI MSH4.01-03 4 1 1.1									
200 m		OPTI MSH4.01-03 5 1 1									
230 m		OPTI MSH4.01-03 6 1 1									

Calculation example

Average daily water output ÷ Index of the exposure to the sun = Dynamic pressure and volume flow for selecting the solar pump system

The target is to supply an average of 22 m³ water per day in Madrid at a pressure of 48 m. In an effort to achieve the required volume flow, divide the daily water output quantity of 22 m³ by the average exposure to sun in Madrid amounting to around 5 kWh/m²/d. This value can be determined using the country chart on the front.

Formula: $22 \text{ m}^3 \div 5 \text{ kWh/m}^2/\text{d} = 4.4 \text{ m}^3/\text{h}$

Consequently, the system must supply a minimum of 4.4 m³/h to meet the requirements. The matching system can be selected from the adjacent table using the value of 4.4 m³/h and the required pressure of 48 m.

→ **Wilo-Actun OPTI-MS14.05-08 with eight solar panels.**

P → Solar panels
S → Strings
TF → Volume flow in m³/h

Use our tool for a system-specific configuration:
solar.wilo.com.



Solar panels in the calculation: 250 Wp, 30 Vmp, 37 Voc.

- Calculations are based on an average exposure to sun over the entire year.
- The actual volume flow varies widely, in particular in the mornings and evenings. A constant volume flow can be assumed to approximate to the daily total supply output.
- We recommend that our staff members provide you with an individual calculation for an ideally designed system.
- In many cases the system output of MS pumps significantly exceeds the required volume flow. In this case it may be beneficial to change to a Wilo-Actun OPTI-QS.