

# Solar-powered Pool Pumps for Commercial Swimming Pools



<b>Subject</b>	Macronissos Village Club, operated by Olympic Resorts	<b>Location</b>	Sotira, Ayia Napa, Cyprus, Europe
<b>Application</b>	Solar powered swimming pool circulation and filtration	<b>Implementation</b>	Project planned and installed by TERZA SOLAR POWER LTD, Cyprus
<b>Size</b>	225,000 USG freeform commercial pool	<b>Installation</b>	2012

**The application of LORENTZ solar-powered water pumping systems for commercial swimming pools has resulted in removing a significant cost burden while ensuring water quality standards are met irrespective of grid power. LORENTZ solutions save the operator money while reducing their environmental footprint.**

**PROBLEM:** The Macronissos Village Club is a complete tourist village located in a peaceful spot on the outskirts of Ayia Napa, Cypress. This popular vacation resort attracts around 6,000 visitors through the summer holiday season to its good family accommodation, beautiful gardens and fantastic free form swimming pool. With the number of visitors keeping the pool cleaned to the very high standards required by the owner, local and national authorities is an expensive activity. The hotel operators were looking for ways to reduce operating costs while ensuring the high pool water quality and hygiene standards were met.

**SOLUTION:** To reduce operating costs and continue to meet the highest water quality standards TERZA SOLAR POWER LTD worked with the owners and LORENTZ engineers to design a solar powered pool circulation and filtration system. Solar panels were fitted to the roof of a restaurant building in the village. The solar panels provide all of the power for the eight pumps that have been installed.

Dimitris Chatzoudis, Managing Director of TERZA SOLAR POWER said "This is a very exciting project for Macronissos Village Club and for TERZA SOLAR. A large commercial pumping project like this is very logical for the Cypriot market, the hotel can reduce operating costs and the system may attract a government grant because of the positive environmental impact it has."

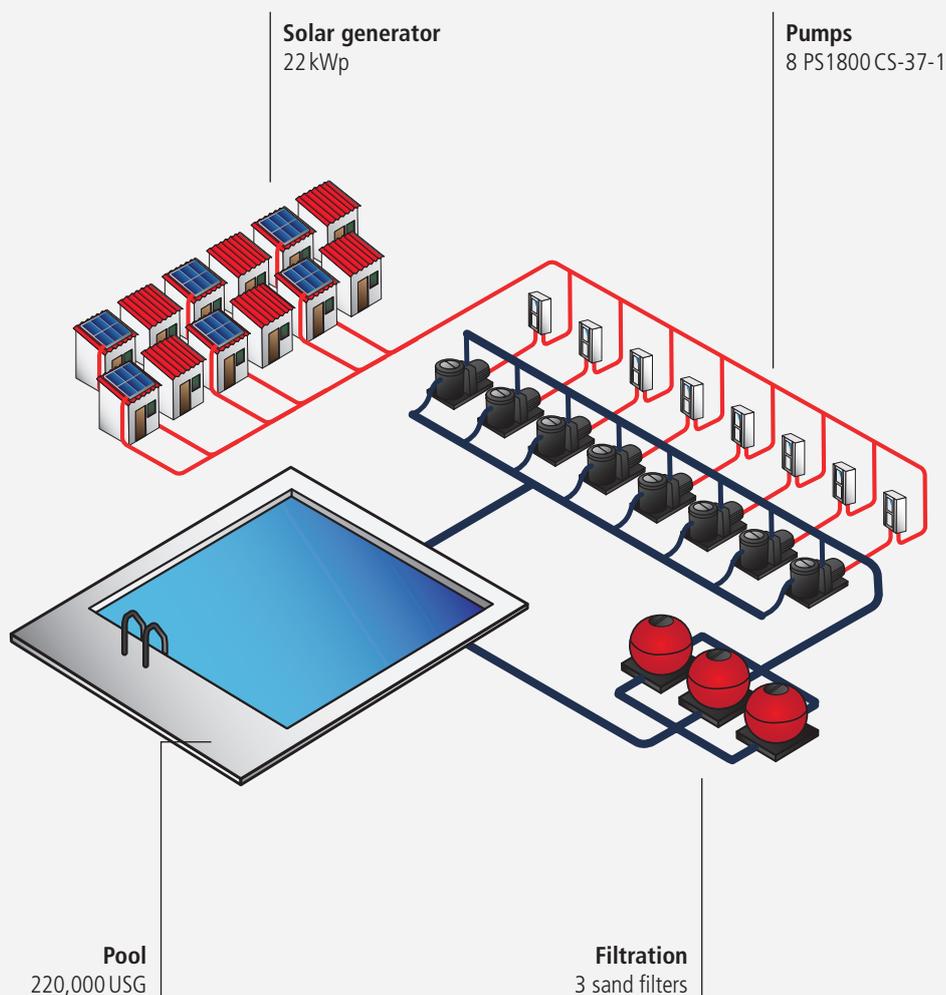
## Technical Overview

The project was planned in conjunction with LORENTZ engineers. The requirement to circulate the whole water volume 3.5 to 4 times per day resulted in a pumping requirement of 890,000 USG per day being required.

Using a computer model eight PS1800 CS-37-1 pumps were specified to meet the pumping need. To power the system across the holiday season (May to September) a solar generator of 22 kWp was specified and installed.

Each pump is powered from a bank of 8 solar panels which gives the system a high degree of failure resilience.

The roof top solar panels were installed by N. G. Chimonas Ltd, all other work was completed by TERZA SOLAR POWER LTD.



## Benefits of the LORENTZ technology

The LORENTZ pumps use DC brushless motors which are very reliable and provide efficiencies of over 90%. The high efficiency means less solar modules are required and the high reliability mean the long term cost of ownership is low.

LORENTZ PS Swimming Pool Pumps are high quality products designed for use in residential and commercial swimming pools and spas. In most pool applications all of the filtration needs can be met directly from the solar panels meaning no electricity costs and benefits to the environment.

- Much longer life expectancy than standard AC motors
- Quiet and efficient
- Proven in service record
- Speed controllable to match the pool size exactly
- Fast and simple installation, direct replacement for existing pool pump
- EC DRIVE DC brushless motors, designed for solar with over 90% efficiency
- High quality non corrodible materials used throughout
- Solar direct connect with AC connection options
- MPPT technology to maximise power use from PV modules



## Key Facts

	Before	After
<b>Pumps</b>	4× 5.6kW mains powered pumps	8× LORENTZ PS1800 direct solar DC brushless motor pumps
<b>Electricity supply</b>	Approximately 350 kWh of electricity per day	Direct solar power
<b>Electricity costs</b>	EUR 60.00 per day	None
<b>CO2 emissions</b>	260 kg per day	None

## Final results

The projects was successfully completed in seven days ready for the start of the 2012 holiday season.

Giannis Papatheodotou, Manager of the Macronissos Village Club sees the project as being very important for his resort: "This project encompasses the key drivers that we have, firstly to give our guests a very good holiday which our pool facilities really help towards. Secondly the welfare, health and safety of our guests is very important, this solar powered circulation and filtration system ensures water quality is perfect

and thirdly we have to offer very good value, our operational savings from this project will help us to keep costs down and for us to remain competitive in the holiday market."

Dimitris from TERZA SOLAR who designed and installed the system added "When people think of solar water pumping they think about a small garden pond. Here we are moving 3 to 4 thousand tons of water per day just using the power of the sun. This is the biggest project so far in Cyprus but we have installed hundreds of smaller so-

lar pool pumping systems using the LORENTZ pumps. We have been working with LORENTZ for almost 12 years now and are very proud of the continued co-operation we have enjoyed.

Macronissos Village Club will see a return on investment within 3 years. At a time of rising energy prices and both a desire and demand to think about the environment this is a very promising result for the responsible leisure market sector.



### About TERZA SOLAR POWER LTD

TERZA SOLAR POWER have established a reputation as a market leader for Solar technology in Cyprus. They have achieved this through professionalism, integrity and partnership with leading solar brand manufacturers of solar panels, solar water pumps, solar tracking systems, water purification reverse osmosis systems, battery backup systems, inverters and educational solar powered models.

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### About LORENTZ

**LORENTZ is a market leader in solar powered water pumping solutions.** Founded in Germany during 1993 LORENTZ has pioneered, innovated and excelled in the engineering and manufacturing of solar powered water pumping. Today LORENTZ is active in over 120 countries through a dedicated network of professional partners. LORENTZ technology uses the power of the sun to pump water, sustaining and enhancing the life of millions of people, their livestock and crops. **Simply – Sun. Water. Life.**

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