

Solar energy: a gift of the sun

Manufacturing solar cells with piping systems from Georg Fischer

Schaffhausen, 26 February 2008

Harnessing the power of the sun to produce energy is a key technology of the future. Solar power systems not only make consumers independent of other energy producers; they are also environmentally friendly. No wonder, then, that the market is booming. The American firm SunPower manufactures solar cells in the Philippines for solar heating systems. GF Piping Systems is actively involved.



Some products are coveted the world over. Nowadays, many people dream not only of their own refrigerator or car, but more and more often they would like to have a solar power system on their roof. Nor is it hard to imagine why. In sunny climes, this uncomplicated form of generating energy is a logical choice. In the colder environment of central or northern Europe, solar energy is an eco-friendly alternative that also shields consumers against rising energy costs. "In developing countries and remote areas where power companies don't operate, for instance in some regions of China, Mongolia or Africa, solar energy systems are an unbeatably simple way of supplying electricity," says Wolfgang Dornfeld, Market Segment Manager Microelectronics at GF Piping Systems in Schaffhausen, Switzerland.

Worldwide boom

Demand is booming, so production is skyrocketing. The growth rates are phenomenal. That is why, in 2003, the US firm SunPower broke new ground, establishing the first plant for manufacturing solar cells in Southeast Asia just outside Manila, the capital of the Philippines. Dornfeld recounts: "We were on board for the planning of the factory at a very early stage and were able to provide extensive advice on which pipe materials to use for which liquids and which gases." It is not widely known that the manufacture of solar cells requires the use of many differ-

ent liquids in addition to water: chemicals such as potassium hydroxide, hydrogen peroxide, sulphuric acid, nitric acid and hydrofluoric acid. With such complex production, environmental protection and occupational safety considerations make exacting demands on the quality of the piping systems.

Total Plastic Solution – TPS

"We supplied the plant with pipes, fittings, valves, and instrumentation & control (I&C) technology," says Dornfeld: "We have an edge over our competitors because we supply the most suitable material as a complete system for all applications." This includes the service package known as Total Plastic Solution (TPS). TPS comprises a sophisticated service package with a single contact person on site at the customer's premises. There are also certified training programmes where users are instructed in glueing, welding and installation techniques as well as quality management methods. The growth of the SunPower facility near Manila amply illustrates the booming demand for solar cells. Since opening in 2003, it has been constantly expanded and has now grown to around seven times its original size. But that's not all. GF Piping Systems recently received an inquiry concerning further expansion.

The bottom line

Robust growth rates

"In addition to SunPower, we supply about 50 manufacturers and suppliers of solar cells worldwide, including all the leading companies. We are anticipating extremely high growth rates in this area. Our sales could increase several times over by 2020."

Wolfgang Dornfeld, Market Segment Manager Microelectronics

Solar energy systems from SunPower

Triumph of the black cells

From Silicon Valley...

SunPower is headquartered in Silicon Valley in California and has further sites in the USA, Korea, the Philippines and Europe. The company is one of the world's largest manufacturers of solar energy systems. It increased its sales of around 150 million euros in 2006 to more than 500 million euros in 2007.

... to the Philippines...

The SunPower plant in the Laguna Industrial Park near Manila employs some 1,500 people. The plant is being constantly expanded and is now about seven times larger than it was in 2003.

... Photovoltaics for the world

SunPower produces nine solar cell models for five different solar modules. Last year, the Philippines plant manufactured solar cells with a power output of 207 megawatts.

Total Plastic Solution (TPS)

Swiss know-how and components

Versatile materials...

Total Plastic Solution, or TPS, is a unique system that offers a total package: pipes, fittings, valves, instrumentation & control technology and jointing technology along with custom-tailored servicing. Unlike many competitors, GF Piping Systems offers complete piping systems in a wide range of plastics. For instance PVDF (polyvinylidene fluoride) or PFA (perfluoroalkoxy copolymer), which are ideal for ultra-pure and highly aggressive media. Some of the other plastics used are PP, PE, PVC-U, PVC-C, ABS and PB. GF has already notched up some outstanding successes with TPS in semiconductor manufacturing, and these in turn have led to long-term cost savings for its customers.

... and certified training

The Singapore marketing and sales office, which takes care of GF Piping Systems customers in Southeast Asia, hosts certified training programmes with qualified trainers. Increasingly, the trainers are working on site on the customer's projects. The subjects covered by these programmes include quality management, processing, installation and welding technology. To date, more than 50 project employees have been trained at SunPower.

«Adding Quality to People's Lives»

Eco-friendly power generation

Decentralised power supply...

Having your own solar power system installed on your roof means financial gains too. The power your system generates can often be fed directly into the power grid and is reimbursed by the power company. In some countries, the state will help finance photovoltaic systems. In developing countries or remote regions, solar cells are often a quiet and eco-friendly alternative to a diesel-run generator and, moreover, they are independent of any raw materials.

... good for the climate

Generating power with solar cells is environmentally friendly and reduces the use of natural resources. Solar power systems do not require any raw materials such as oil that are becoming increasingly scarce and expensive. The power generated does not emit any exhaust gases or other environmental pollutants. This is certainly a reason why more and more people are opting for photovoltaics. And Georg Fischer is there to help them.