

## Press release

### Ultrasonic technology to clean solar panels

- ▶▶ *The IK4-TEKNIKER technology centre has developed and patented an ultrasonic cleaning system for solar thermal plants that recovers 100% of reflectivity*
- ▶▶ *It consumes 600 times less water, removes dust particles smaller than one micron and prevents the scratching produced by conventional utensils such as brushes from occurring*
- ▶▶ *The system will be presented at SolarPACES, a benchmark congress at a world-level in the field of solar power concentration*

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(Eibar, Basque Country. 20 September, 2017).- In recent years, non-conventional renewables have advanced significantly and, in 2016, increased their generation capacity by nearly 9%. Special mention must be made, however, of growth rates linked to the solar thermal power industry which, thanks to R&D investments mainly from German and Spanish businesses and research centres, have brought about significant progress as regards improvements in terms of know-how and component optimization.

Solar thermal power plant performance is closely related to the reflectivity of solar panels (called collectors) used to store the energy supplied by the sun so it can be transformed into thermal power. To achieve optimum operation, it is essential that all mirrors in these systems be free from dust and stains that accumulate over time.

It is within this context that [IK4-TEKNIKER](http://www.tekniker.es) has developed and patented an ultrasonic cleaning system for heliostat solar panels that regains 100% of mirror reflectivity to recover initial factory settings. Heliostats are collectors fitted with one or more mirrors that are oriented automatically to track the sun's movement and optimise energy collection to the greatest possible extent.

The solution developed by the Guipuzkoa-based technology centre is an ultrasonic device that removes dirt adhered to the surface of a mirror by means of a sweeping motion. Unlike other currently used cleaning techniques, such as pressurised water jets and brushes, this system offers significantly enhanced performance and savings in terms of resources.

It allows dust particles smaller than a micron to be removed and, compared to conventional methods, consumes 600 times less water. This new device, moreover, prevents scratching resulting from physical contact between cleaning utensils such as brushes and the mirrors as, in the long run, this reduces their reflectivity irreversibly.

To develop this system, IK4-TEKNIKER has resorted to immersion-free ultrasonic cleaning. As the object to be cleaned does not have to be placed inside a tank, it is easier to work on large surfaces with limited mobility. This allows a cavitation field (the active principle of ultrasonic cleaning) to be generated on a thin layer of water covering the area to be cleaned.

In addition to glass-cleaning efficacy, the solution can also be applied to an extensive range of surfaces such as pavements or facades. “This fact portends a number of interesting options for companies operating in different sectors connected to industrial or urban management that develop cleaning devices and produce large components”, says Jon Ander Sarasua, a researcher at IK4-TEKNIKER.

“This system also confirms IK4-TEKNIKER's commitment with regard to delivering technological solutions that will further increase the competitiveness of renewables”, adds Sarasua.

#### **Presence at the SolarPACES congress**

IK4-TEKNIKER will be presenting this innovative device at [SolarPACES](#), an internationally renowned congress addressing solar power concentration and chemical energy systems to be held in Santiago de Chile from 26 - 29 September.

During the event, the technology centre will give four presentations that will not only focus on the previously mentioned ultrasonic cleaning system, but also on other solutions that have been developed in this field such as an innovative calibration procedure or a new anti-fouling device for solar reflectors.

The event, organised by the [International Energy Agency \(IEA\)](#) will bring together more than 600 researchers, scientists and businessmen from all over the world to discuss new developments in the field of energy.

**Concerning IK4-TEKNIKER**

With more than 35 years of experience in applied technology research that has been transferred to companies, IK4-TEKNIKER has achieved a high degree of specialisation in four major areas (Advanced Manufacturing, Surface Engineering, Product Engineering and ICTs). This means that its cutting edge know-how has been made available to customers to meet their requirements.

**Further information**

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