Higher efficiency at lower costs - Industrial Solar's LF-11 Fresnel collector cracks the mark of 70% optical efficiency

The engineers of Industrial Solar are constantly working on their Fresnel collector design to increase efficiency and to bring down cost. A raytracing study by Fraunhofer ISE proved that they were successful as the optical efficiency reached the 70% mark.

The LF-11 Fresnel collector from Industrial Solar was one of the first concentrating solar collectors to be designed for process heat generation and suitable to be installed on rooftops. Since 2008, Industrial Solar has successfully implemented LF-11 systems in seven different countries and various industrial sectors to provide solar process heat, cooling and direct steam generation.

The LF-11 Fresnel collector is the flagship of the company's technology portfolio and can generate temperatures up to 400 °C in a power range up to 30 MW, which meets the thermal energy demand of many industries.

The latest version of Industrial Solar's LF-11 Fresnel collector was upgraded regarding the width of the individual mirror rows as well as the maximum string length. Accordingly, the optical efficiency for perpendicular incidence eta_0 increased by 5,1% from 63,5% to 68,6% in comparison to the previous collector version.

The maximum optical effiiciency - which is reached at a transversal incidence angle of 5° - has now cracked the 70% limit with a value of 70,9%. These values were confirmed in a raytracing study performed by the Fraunhofer Institute for Solar Energy Systems in Freiburg.

The collector technology has been constantly improved and refined over the years, but these latest design changes are considered a major milestone. The improvements were made without increasing the collector footprint, which means that the customers will obtain a higher yield for the same ground use at an even lower price.

Additionally, the standard vacuum receiver from the CSP sector, which is a core component of the collector, has been improved in the last years, having now a shorter glass-metal-seal and better optical and thermal properties. Another improvement of the collector installation is the increased string length that was optimized for 24 modules using only a single drive in each mirror row, which reduces costs and installation time.

Innovation is central to Industrial Solar, which can be seen in the company’s engagement in various R&D projects on both European and national levels.

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Industrial Solar Holding Europe AB holds 100% of Industrial Solar GmbH in Freiburg/Germany.

Industrial Solar GmbH is an international leading technology and solution provider, which develops projects mainly based on its innovative Fresnel collector technology suitable for fulfilling an expected growing market of solar process heat. As a one-stop-shop Industrial Solar offers turnkey solutions for customers in several industries.
Find out more about Industrial Solar GmbH at the following address:
https://www.industrial-solar.de/