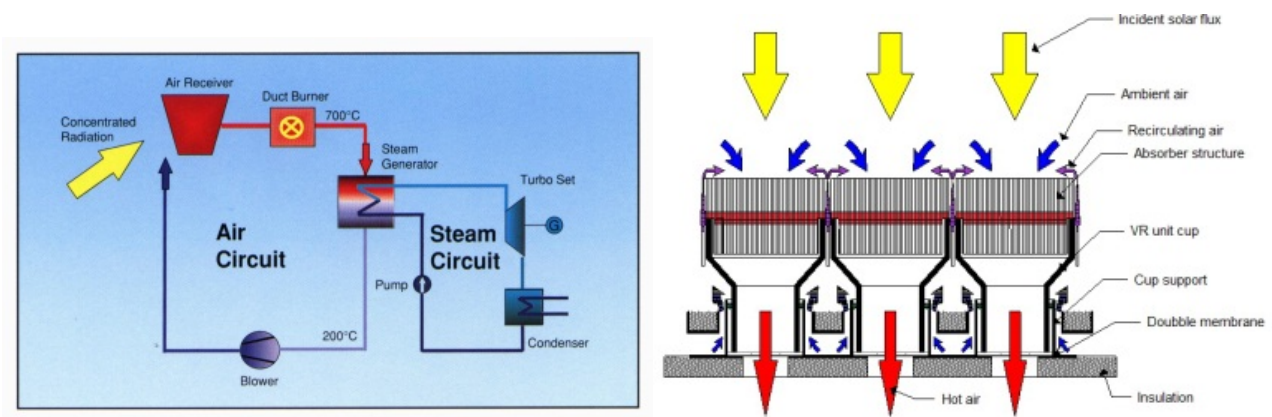


SolAir project

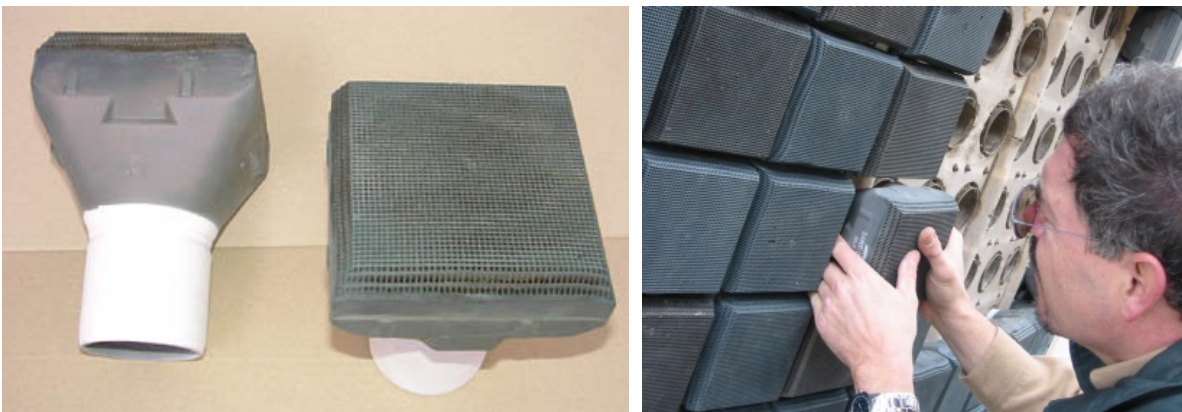
The SolAir research project addresses a technology development for cost reduction and further commercialization of Concentrated-Solar-Power (CSP) tower plants.



It was the objective of this project to develop and demonstrate a new air Volumetric-Receiver technology based on the HitRec project results. Which was Silicon Carbide ceramic VR-units resulting in improved reliability and performance with reduced component costs for better performing solar tower power plants. A prerequisite of the economic success of the air Volumetric-Receiver technology was to qualify the innovative receiver design and the used ceramic materials in an experimental receiver unit (200 kWth - SolAir200). And, after that demonstrate the technology in a scale-up test receiver system (3 MWth - SolAir3000) on the 90 meter high CESA tower at Plataforma Solar de Almeria in south of Spain.



The key ceramic SolAir VR-units mounted next to each other to receive all the concentrated solar power. The square shaped ceramic Volumetric Receiver Units (VR-units) 140×40 mm across are developed by Stobbe Tech A/S and in large numbers manufactured by SGIK GmbH from Silicon metal infiltrated Silicon Carbide extruded honeycomb ceramics and cast Silicon metal infiltrated Silicon Carbide cups.



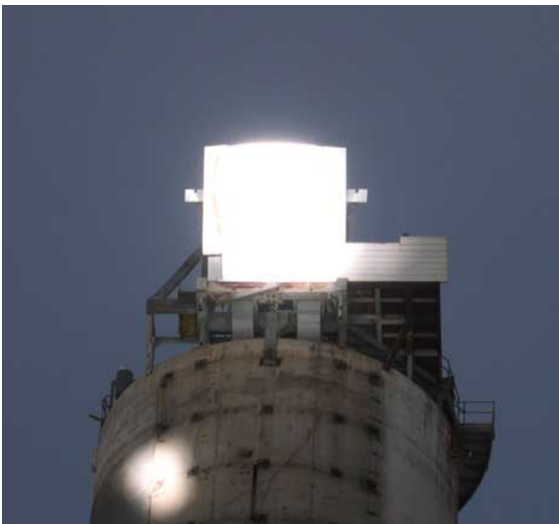
140×40 mm VR-units in design and mounting by Udo Hack from SGIK.

The European partners cover all the sectors involved in the R&D of the advanced air Volumetric-Receiver project and composed by:

- Abengoa / INABENSA, the Spanish industrial partner – www.hidrogeno.abengoa.com
- DLR, Germany with scientific capabilities in the field of solar thermal concentrating technologies with special knowledge of R&D of air Volumetric-Receiver - www.dlr.de
- Ciemat including availability of Europa’s largest solar test beds on the “Plataforma Solar de Almeria” in South-Spain - www.ciemat.es – www.psa.es
- CERTH / CPERI, Greece with scientific capabilities in the field of material science - www.apc.cperi.certh.gr
- IBERESE, Spain performing cycle optimization of the (CSP) tower plants
- Stobbe Tech, Denmark for the development, manufacturing and supply of special ceramic VR-units for the air Volumetric-Receiver – www.stobbe.com

Title: “Advanced solar volumetric air receiver for commercial solar tower power plants”

The project was sponsored by the EU commission under FP5 – “Energy, Environment and sustainable development” with the EU scientific officer Dr. Philippe Schild.



SolAir3000 receiver in operation on the CESA-1 tower and Per Stobbe mounting the VR-units.

Project period: 1999 to 2003