

Founded in 1981 as a privately-owned, not-for-profit technology centre.

➔ MISSION

TEKNIKER-IK4 is a technology centre staffed by people who are committed to promoting the ability to innovate on the part of our customers and increase their technological capital to help them become more competitive through the generation and application of scientific and technological knowledge.

➔ Specialisation

- Precision engineering and mechatronics
- Surface engineering.
- Production engineering and automation
- Manufacturing technologies.



Concentrated Solar Power



CONTACT:

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TEKNIKER- IK4 activity in renewable energies



- ➔ Concentrated Solar Power (CSP)
- ➔ PV Solar Energy (Thin film)
- ➔ Solar Heating and Cooling
- ➔ Energy Storage:
 - Thermal Storage at different temperatures
 - High speed flywheels
 - Vanadium Redox batteries
- ➔ Wind Energy



Concentrated Solar Power



Design of new components

Specialists in designing mechatronic equipment and precision systems for a large variety of applications (scientific equipment, machine tool, etc.) Solution of complex tribological problems.

TECHNOLOGIES → SOLAR APPLICATIONS

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| <ul style="list-style-type: none"> ● Precision engineering. ● Mechatronics. ● Electronics. ● Thermal fluidic simulation. ● Tribology. ● Precision metrology. ● Vacuum systems. | <ul style="list-style-type: none"> ● Stirling engines. ● Solar collectors design, precision trackers, test benches and solar sensoring. ● Custom made systems for geometric characterisation and precision assembly. ● Development specific production systems for the sector (e.g. coating chambers) ● Development of CIGS solar cells. |
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Heat transfer and storage

Wide experience in design, characterisation and analysis of fluids and materials for different industries (automotive, aeronautic, building...)

TECHNOLOGIES → SOLAR APPLICATIONS

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| <ul style="list-style-type: none"> ● Heat Transfer Fluids (HTFs) ● Composites based on micro and nanotechnology. ● Encapsulation by sol-gel. | <ul style="list-style-type: none"> ● Development, characterisation and monitorization of HTFs. ● Design and characterisation of Phase Change Materials (PCMs) for energy storage at different temperature ranges. ● PCMs encapsulation and use of nanotechnology for improving thermal properties of storage and transfer materials. ● Chemical and structural analysis of molten salts. ● Chemical reactions for energy storage. |
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Surface and coatings

Specialists in developing coatings and surface treatments for their application to machinery, automotive, sensorial, building and other parts and components.

TECHNOLOGIES → SOLAR APPLICATIONS

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| <ul style="list-style-type: none"> ● Physical Vapour Deposition (PVD) by sputtering or Arc. ● Solgel for surfaces functionalization. ● Texturing by UV-Lithography. ● Laser. | <ul style="list-style-type: none"> ● Functionalization of optical surfaces: selective, reflective or antireflective coatings. ● Development of hydrophobic, hydrophilic, biocide, self-cleaning or photocatalitic surfaces. ● Development of CIGS absorbing coatings, contacts and buffer layer. ● Transparent Conductive Oxide (TCO) coatings. ● Development of laser scribing process for thin film solar cells. |
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Set-up, operation and maintenance

More than 25 years of experience and knowledge in connection with strategy definition and the application of predictive maintenance technologies. Principally collaborating with the customers on optimising processes and products.

TECHNOLOGIES → SOLAR APPLICATIONS

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| <ul style="list-style-type: none"> ● Wireless Communications. ● Chemical analysis. ● Metrology ● E-maintenance ● Sensorics. ● Condition Monitoring. ● RAMS Analysis ● Wearable computing/ ambient intelligence | <ul style="list-style-type: none"> ● Autonomous heliostats or throughs (wireless) ● Predictive maintenance based on HTF analysis. ● Detoxification of water and soils contaminated by HTFs. ● New O&M strategies. ● Geometric characterisation and precision assembly. ● Energy-efficiency optimization. |
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Reference partners:

CUSTOMERS AND PARTNERS

- ABENGOA Solar New Technologies
- SENER
- TORRESOL Energy
- COBRA Energía
- ARIES Ingeniería y Sistemas
- Renovables SAMCA
- RIOGLASS Solar
- PSA
- IBERDROLA Renovables

Members of:

- European Solar Thermal Electricity Association -ESTELA-
- Asociación Española para la Promoción de la Industria Energética Termosolar -PROTERMOSOLAR-
- IEA- Task 42 for Compact Thermal Energy Storage
- International Solar Energy Society -ISES- Subcomité de Sistemas de Energía Solar Termoeléctrica
- AEN/CTN206/SC -AENOR-