Heat-resistant solar receiver with extended service life

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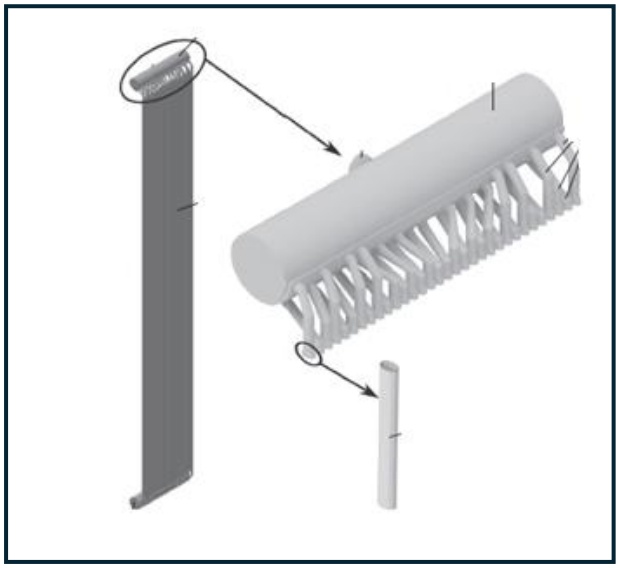
Summary/Characteristics

A researcher from Universidad Carlos III de Madrid has developed a technology consisting of a new structure for an external solar thermal receiver made of oval or elliptical tubes instead of circular ones. This shape allows the solar radiation reflected by the heliostats to be distributed along the perimeter of the tubes, reducing heat losses, increasing efficiency and minimizing tube deformation as temperature rises, thus extending the service life of the solar receiver..

Potential licensees and collaborators are sought to continue developing the solar receiver and support the technology's market deployment.



Schematic representation by components of the heat-resistant solar receiver

Innovative Aspects

- Absorber tubes with an elliptical or oval shape instead of circular.
- Guides that restrict tube movement exclusively in the axial direction.
- Curvature at the tube ends to facilitate assembly and specialised tube coating.
- Modular design with multiple heat transfer fluid circuits.

Competitive Advantages

- Reduced heat losses, increasing device efficiency.
- Reduced tube deformation caused by high temperatures.
- Longer service life of solar receivers compared to current models.
- More efficient energy management.

Technology readiness level:

In development phase – Laboratory prototype. TRL 4.

Intellectual and Industrial Property Status:

Spanish patent granted. Title: “Receptor solar de torre exterior”.

Type of collaboration sought:

Investment agreements, commercial agreements with technical assistance or R&D&I cooperation agreements are sought to further develop and commercialise the solar receiver together with companies in the metallurgical and energy sectors, as well as manufacturers of solar receivers or related firms.

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