GIRASOLI

GIRASOLI is a photovoltaic sculpture representing a sunflower – one of nature's most simple and fascinating symbol of beauty and resilience.
Like the flower from which it draws inspiration, *GIRASOLI* rotates and tilts, tracking the light of the sun and transforming its flow into renewable energy.
Sensitive to the environment, the heliotropic sculpture 'plays' both the rotation of the earth around its own axis and its revolution around the Sun.
The project contemplates the possibility of having the same model scaled to different dimensions, hypothetically ranging from the sculptural pavilion for a civic park to the design object for a residential garden (be it a private garden or a Kleingarten).

At its civic scale, *GIRASOLI* provides energy to the park and the city of Mannheim – at the same time proposing itself as a place welcoming cultural events for both residents and visitors all year around.
The main structure is a phototropic pavilion with an inclined cover above a flexible venue. It moves on a circular rail-track, whose circumference ideally delimits the area destined to public activities.
The round rail-track symbolizes the outermost circumference of the sun path; the cardinal points and the position of the sun at sunrise and sunset on the 21st of each month of the year are marked on it, highlighted the solstices and equinoxes.
The pavilion features a mobile large arch representing a rotating gate to the park, innovating the archetype of the portal.
The whole structure requires only two support points (one is fixed in the centre, the other 'follows' the sun), the space below thus naturally offering a free space for social public activities (i.e. for public engagement, recreation, congregation, education, gardening, etc.).

As for the residential scale *GIRASOLI*, it is itself a tilting and spinning solar panel providing clean-energy for activities like urban farming and gardening. In case of need, the solar panel can eventually be personalized by printing an image on its surface, thus becoming a means of individual or group expression.

GIRASOLI has a rotational and telescopic support structure that allows to orient the circular flat surface composed of photovoltaic panels towards the sunlight in order to optimize the production of renewable solar energy.
The dynamic movement of spinning and tilting to different degrees allows the sculpture to track the sun during the day and throughout the year.
The panels use a solar technology based on monocrystalline silicon (mono – Si) photovoltaic with a custom lamination. A white nano technology film with high transmittance is applied over the module during its assembly.
The white solar panels are flat, frameless and show no cells or connections.
The pavilion has a diameter of 26,75 m, the surface of the solar panels of 562 m^2, and an annual capacity of 170 MWh. The arch has a maximum height of 4 m.
The residential-scale *GIRASOLE* has a diameter of 1,40 m, the surface of the solar panel of 1,53 m^2, and an annual capacity of 0,5 MWh.

Environmental impact summary
The open arched structure allows the local natural system to coexist and interact with the social everyday life, as well as with the cultural activities that can be organized under the rolling cover. Supporting the function of the landscape as a public amenity, it enhances the objectives of the Green Corridor, providing that fresh air flows unobstructed into the city.

GIRASOLI can also be used as an agrivoltaic structure, allowing the cultivation and production of food under the photovoltaic sloping cover, conserving water and generating clean energy on different scales, from civic park to small urban gardens.
The intervention is safe for people; it does not generate greenhouse gas emissions nor other form of environmental pollution.
The structure can be disassembled and assembled - and is pragmatic and constructible, employing tested scalable technology.

BUGA 23, The German National Garden Show in Mannheim, complies with the UN Sustainability goals and wants to explore the challenges of our time relating to climate, environment, energy and food.
GIRASOLI supports the United Nations Sustainable Development Goals of sustainable agriculture, public health, environmental and climate protection and sustainable energy, and wants to be an innovative and experimental proposal for a sustainable lifestyle in Mannheim.

The sunflower is an emblem of solidarity: its exuberant and lively form is a global symbol of joy and concord. The simple though elegant design of *GIRASOLI* concretizes in itself a moment of integration between art, nature and science, pointing out the cultural need for interaction and peace.