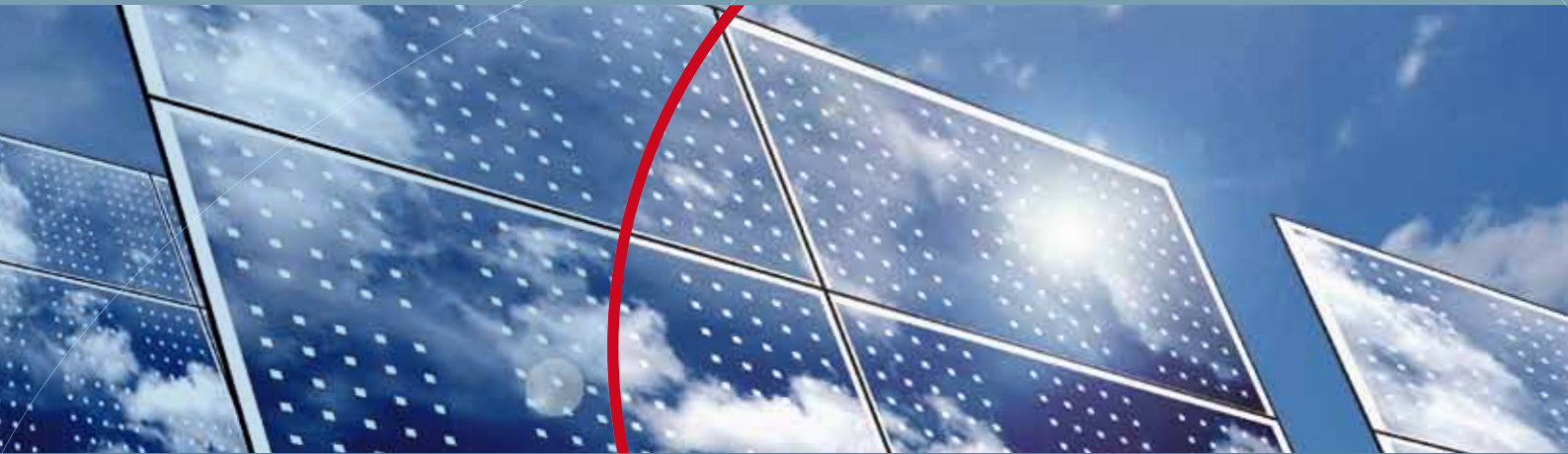


SONCEBOZ
from mind to motion



Motion systems

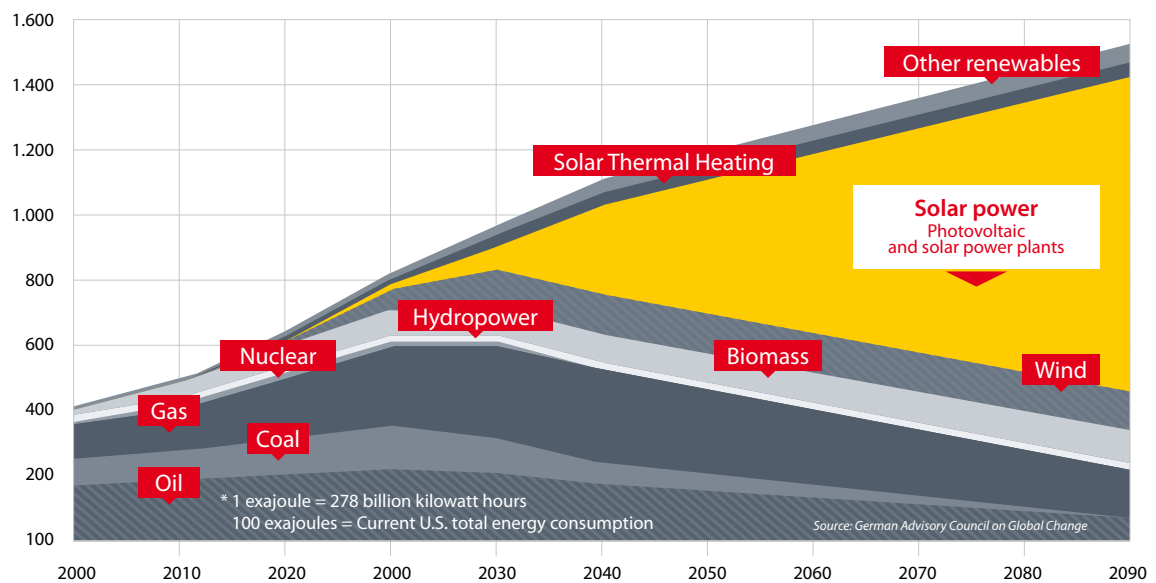
for challenging **sun tracking** applications

Challenges in Sun Tracking

Sun is one of the most promising renewable energy sources. Different technologies allow collecting this energy, each of them have their own specificities and advantages: Photovoltaic (PV), Concentrated Photovoltaic (CPV) or Concentrating Solar Power (CSP). Single axis or dual axis sun tracking systems are required for CSP and CPV applications while the tracking system improves the efficiency of PV systems. For example, large power plants can be implemented with different CSP technologies such as parabolic trough, central tower or linear Fresnel, all requiring precise sun tracking systems. Electrical motors are often used for the motion of the mirrors or photovoltaic modules. The main challenges are in finding ways to:

- Implement very precise positioning for maximum optical efficiency
- Reduce maintenance costs thanks to robust and long-lasting electric actuators designed to work in harsh environments
- Provide easy to use and cost-effective solutions
- Reduce power consumption

Projected share by source of annual global energy production in exajoules* per year



Parabolic trough

Parabolic trough collectors are the most used technology, because it is currently the most mature and proven one. Though most of their single axis tracking systems are hydraulic, the smaller sizes may be realized with electrical actuators to reduce system complexity and costs.



Central tower

Solar tower technology is gaining momentum, especially in the US market, where developers are looking at the higher temperature and efficiency potential as an opportunity for achieving cost effectiveness for large utility scale CSP plants. The heliostats used to reflect the sun light are of the dual axis type.



Linear Fresnel

Linear Fresnel is a very promising technology which offers cost reduction potential thanks to its relative simplicity: flat mirrors, simple structure and single axis tracking system. This technology also offers the lowest water consumption and land requirements.



CPV

Concentrated photovoltaic (CPV) technology uses optics to concentrate a large amount of sunlight onto a small area of solar photovoltaic (PV) cells to generate electricity. Compared to non-concentrated photovoltaics, CPV systems can save money on the cost of the solar cells, since a smaller area of photovoltaic material is required. To get the sunlight focused on the small PV area, CPV systems require concentrating optics, solar trackers, and cooling systems.

Our solutions

Sonceboz has been active and recognized for years as an expert in advanced mechatronics motion systems. This has allowed Sonceboz to gather an in-depth understanding of customers' expectations. Our outstanding track record and successful performance emphasized by the competency and flexibility of our Engineering team develops a win-win partnership with our customers.

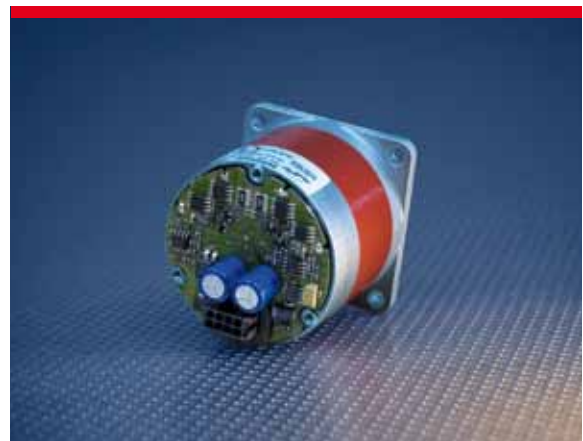
Our robust DC brushless motors are application-specific electric actuators and can be combined with gears and sensors in order to create the optimum sun tracking system. They benefit from a solid electro-mechanical expertise and proven technologies. Long-Life and energy efficient motor make these motion systems the natural fit for a successful integration on your application.

Main features are:

- High torque at medium and low speed for continuous motion mode: no start – stop and associated losses
- High resolution and position accuracy
- Low power consumption
- Integrated high resolution sensor and electronics with different interfaces
- Temperatures range -40 +100 °C
- Dust and water ingress resistant: IP67
- Robust and reliable very long life brushless solution

Your benefits

- *A unique partner for motor, electronics, gear and sensor*
- *Low maintenance and operation costs*
- *Reduced system complexity*
- *Reduced gear ratio for less backlash and better precision*
- *Proven track record in automotive harsh environment*





SONCEBOZ

Motion systems

Our core competencies consist of design, development and production of **mechatronic drive systems** and **electric motors** that operate in **harsh environments**.

We are committed to improving safety, decreasing energy consumption and minimizing the impact on the environment. Our focus on **innovation, best in class quality** and **exceptional service** is our key to success for worldwide OEM customers and their suppliers.

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